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MANUFACTURERS RECORD

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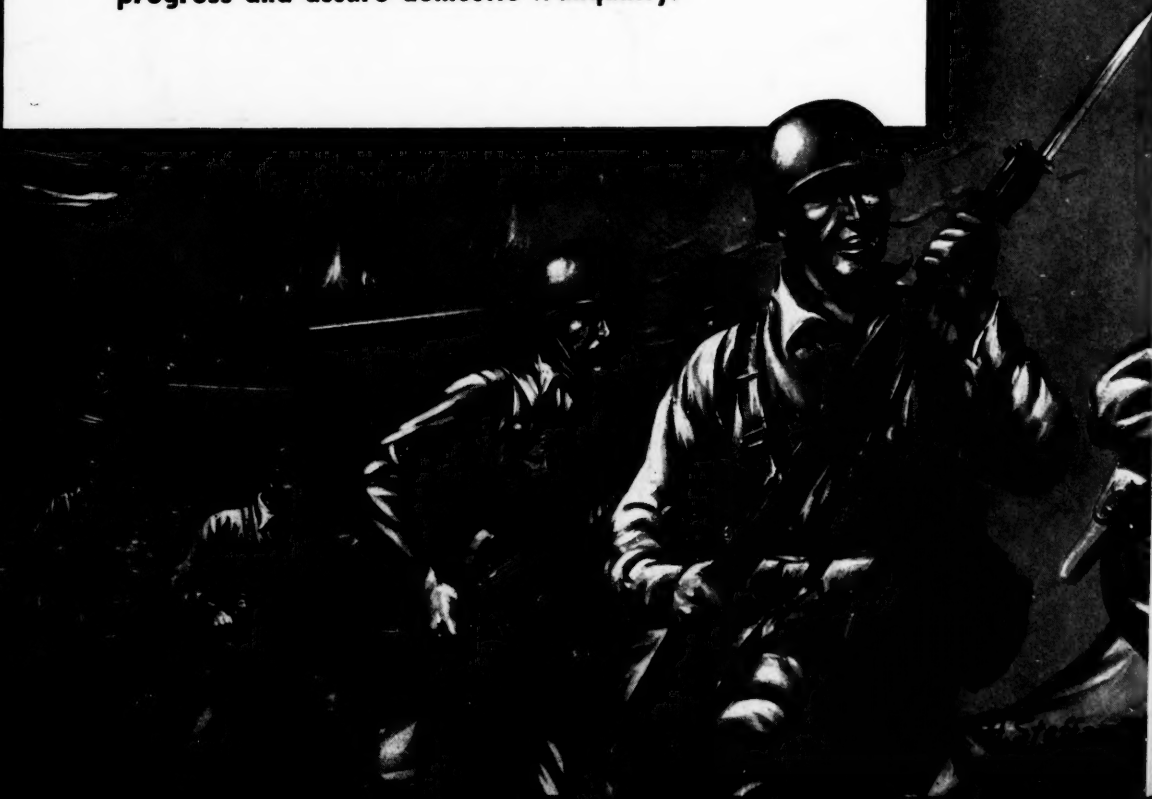
REFERENCE
DO NOT LOAN

STACKS

Remember France!

Remember the political, social and labor cliques that undermined the national structure of a great nation and left it an easy prey to its age-old enemy.

We, millions of us in America, remember what France brought upon herself, and we want unity in our nation, the kind of unity that is possible under unselfish and capable leadership. We want the kind of unity that can win wars and then preserve peace. We also want the kind of unity that will encourage national progress and assure domestic tranquility.





"Anybody remember what Tomkins owes us?"

We'll wager they don't even come close, for memories are notoriously fickle.

What they need are records—accurate records that get things down in black and white . . . correctly—eliminate guesswork—cut waste and red tape . . . speed and co-ordinate the flow of vital information.

That's why so many businesses use Uarco's scientifically designed records for purchasing, manufacturing, shipping and office routines. They save time,

money and manpower in today's swift race for Victory . . . are tailored to individual needs.

Perhaps Uarco Records can better co-ordinate and integrate routine in your business, too. If we don't have the right kind of records for you, we'll design them. Why not let a Uarco representative analyze your problem?

UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*

UARCO

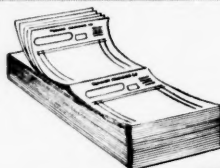
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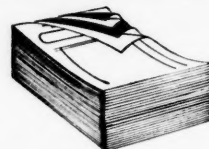
AUTOGRAPHIC REGISTERS



**FORMS FOR
HANDWRITTEN RECORDS**



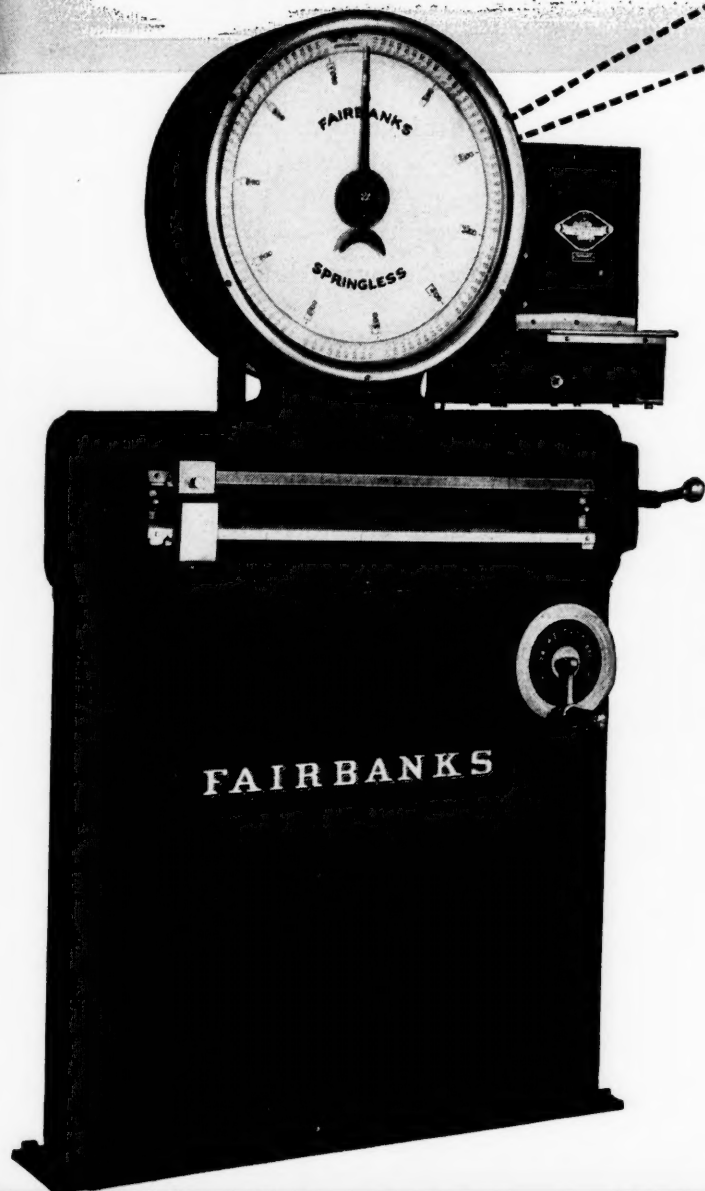
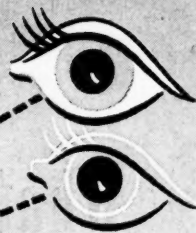
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**FORMS FOR
BUSINESS MACHINE RECORDS**

LOOK TWICE!

IT'S MORE THAN A SCALE



SURE it's a scale—a *good* one! NO better weighing machine is made. But this Fairbanks-Morse Dial Scale with Printomatic is more than a scale—and fast, accurate weighing is only one of the jobs it does! For modern Fairbanks-Morse Scales are *tools* that *speed* production.

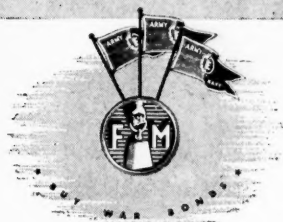
They keep books, making printed records of incoming and outgoing shipments. They "read" themselves and *print* the weight record on a ticket or tape. They control batching. They measure paint ingredients. They guard secret formulas. They count small parts. They save time and money by preventing human errors. They can be fitted into your production flow to eliminate duplication of effort and accelerate output. If we can't show you how—that's our loss—not yours. Fairbanks, Morse & Co., 600 S. Michigan Avenue, Chicago, Illinois.

FAIRBANKS-MORSE

DIESEL ENGINES
PUMPS
MOTORS
GENERATORS
WATER SYSTEMS
SCALES
STOKERS
FARM EQUIPMENT
RAILROAD EQUIPMENT



Scales



What is the Railroads' Future?

When war traffic ends—as it will—what is going to happen in the transportation world?

The railroads will be confronted with competitors—all given special favors, special privileges and subsidies by government.

The war certainly has demonstrated what railroads can do, if the business is available. Now what can they do when they must compete for all business?

The N. C. & St. L. believes in competition and believes that it can successfully compete with any form of transportation which does not receive special favors and subsidies from government. The N. C. & St. L. is perfectly willing to stand or fall on its capacity to compete, *if conditions are equal.*

The N. C. & St. L. suggests for a national transportation policy either the authorization by law of transportation companies, with the power to engage in any and all forms of public transportation, or else the cessation of all subsidies and all favoritism.

What is the best policy for the American people?

The N. C. & St. L. suggests "Equal Rights to All and Special Privileges to None."

The Nashville, Chattanooga & St. Louis Railway

MANUFACTURERS RECORD

Established 1882

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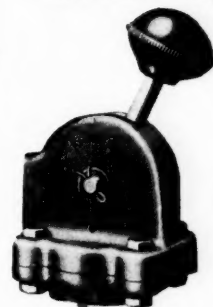
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March 3, 1879 Volume 112, Number 11, Monthly

W. A. B. Pneumatic Control Systems



**TITE-AIR
VALVE**

**So Much Can Be Done
With So Little**



W. A. B. Pneumatic Controls offer unlimited opportunities for time and labor savings in the current production picture. Lifting, shifting and transfer operations can be remotely controlled by single lever movement with greater speed and efficiency.

Processes involving expenditure of high physical effort are reduced to a fatigueless level. Limitations on the physical capacity of the operator are thus removed.

These advantages are obtained with the basic elements illustrated above—TITE-AIR VALVE for finger tip control of an off-on working cylinder.

Many similar systems for sequence operation of related and interlocking functions are used profitably on cranes, hoists, dredges, conveyors, etc.

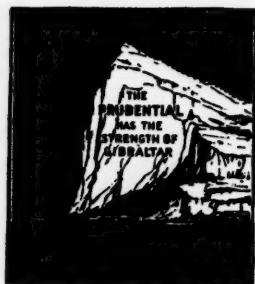
*Let us engineer a Pneumatic Control
System to YOUR job.*

**Westinghouse . . .
AIR BRAKE CO.
Industrial Division
WILMERDING, PA.**

Your Problem— Our Job

It is our job to help every family man who has the problem of affording adequate life insurance. We have designed low-cost policies to meet common situations.

We may have
the one you
need



The Prudential
Insurance Company of America
Home Office, NEWARK, N. J.

Little Grains of Sand

*"Little drops of water, little grains of sand,
Make the mighty ocean, and the pleasant land."*

It is our privilege this month to print excerpts from a letter, an editorial, and an address. The excerpts from the letter are from one of the oldest business houses in the country. It seems to express an idea of business honesty that is worth printing. The editorial is from a man who started from scratch and is now a well-known figure in our national economy. It too is worthy of publication. The last comes from an address by a recently elected member of the House of Congress (Dem. 2d Dist. Md.). It takes businessmen to task for their neglect in public affairs. It certainly deserves the attention of businessmen everywhere. As we used to say once upon a time in the Army, these are "submitted for the information and guidance of all concerned."

Letter

"Some printers have offered us orders for presses for post-war delivery but at the present time it is not possible to estimate post-war selling prices of printing machinery or to predict when deliveries will commence or the rate at which they can be continued thereafter.

"It has been suggested that we might enter orders now for 'delivery as soon as possible at price prevailing at time of delivery.' This, it seems to us, would have the effect of obligating the customer to us without our undertaking any commensurate obligation to him, and it would not be fair. We prefer not to ask any printer to commit himself at this time to any obligation whatever in connection with the purchase of Miehle presses in the future. We would rather wait until we are able to give definite information as to delivery dates and prices."

Editorial

"The first thing I seek to find in a man is evidence of the belief in, and the trait of, loyalty—loyalty to his God; loyalty to his friends; loyalty to himself. I have found that a loyal man is an honest man, and that a loyal man is a dependable and good man. I have placed loyalty among my fellowmen as a cardinal virtue, and whenever and wherever I have found loyalty, that person have I bound to my heart with hoops of steel.

"In turn, I have tried to live my life with the principle of loyalty as the guiding precept, just as I believe most other Americans have. I do not think I could have done otherwise. I am proud to say that I have never ceased to appreciate any favor that was done for me. I am proud to be able to confess that I have never gone back on a word or a promise, never has a friend or acquaintance ever been forgotten by me nor been unwelcome—and those who knew me

MANUFACTURERS RECORD FOR

when I was poor—those who were friends in the lean years have been doubly welcome in the fat years.

"The concept of loyalty to friends, loyalty to God, loyalty to one's self and one's fellowman, rules most of us; it has ruled me for as long as I can remember. When the time comes for my name to be written in God's book of deeds, if it shall only be said 'He was one who never forgot a favor or a friend,' I shall be happy."

Address

"Washington bureaucrats intend to perpetuate a planned economy that will bring about a lower moral fiber which will destroy the American spirit of free enterprise.

Reporting on "What I See in Washington," the Second District Congressman declared, "The present unhappy state we find the country in" springs from "government by pressure groups, seeking special favors at hands of government, disregarding effect on the nation as a whole.

"You call it politics, and you well know that politicians have been and are running your Government. And I say to you, become politicians.

"Make public life and public affairs a big part of your business. Be well informed. Accept your duty and obligations as a citizen and nip bureaucracy's spread.

"We are at the crossroads of the American way of life. The known philosophy of those in authority in Washington today is Government control. There is no question about it.

"We of America accept the emergency controls of our lives. But if you think for one minute the men heading bureaus created as wartime agencies will voluntarily give up control you are sadly mistaken.

"It is up to you to become aroused, and to demand the things that made America great be preserved.

"Stop going to Washington for assistance and solve local problems with local brains."

Manpower

No one can read the papers today without reading that this nation is faced with a shortage of manpower.

This is a misstatement of fact.

The nation is faced with a shortage of men who really want to work, men who will work regularly, not for the pay that they receive, but because of the goods and materials that they help to produce.

This nation is not short of men. It is short of men who are carelessly or selfishly unwilling to supply the "POWER" to the jobs that they do.

It is not only a question of men working when and where they please. It is not only a question of absenteeism. It is even more a question of men working when they are supposed to be working.

Coddling by management, easy money and more of it than was dreamed possible a few years ago and job protection under union dictatorship have leveled workmen down, not up.

It is manpower, not men that is needed.

Gives all-around, long-time satisfaction in grinding the chip-breaker groove on carbide-tipped tools — used also for other production grinding.



New Delta Chip-Breaker Grinder is simple, fast, dependable, accurate — and much lower in cost...

In grinders costing many times as much, you do not find many of the new, exclusive features you get in this latest Delta machine. It's husky, solid (weight 700 pounds), over 6 feet high, an accurate machine designed to turn out a big volume of work. Yet its cost is amazingly low.

Spindle shaft specially designed. Bearings widely spaced to provide permanently true alignment. Wheel mounting system permits removing either wheel alone, or wheel and adapter. Table is smooth operating with convenient control wheels — rides solidly on long ways.

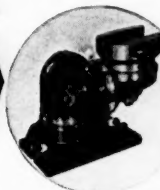
EQUIPPED WITH THE NEW "UNIVISE"

... holds the tool at any conceivable angle

Four distinct planes of adjustment. Can be accurately reset at a moment's notice so that the tool may be reground at precisely the same angles as originally set. Saves time, wheel wear. Eliminates bothersome and often inaccurate measurements.

With Univise and coolant attachment removed, this machine may be used as a regular surface grinder.

The features and performance of this Delta machine are amazing to those accustomed to paying far more than its cost. Investigate — be first in your plant to discover the convenience and economy of this new Delta grinder. See it at your Delta industrial distributor's — check priorities and deliveries.



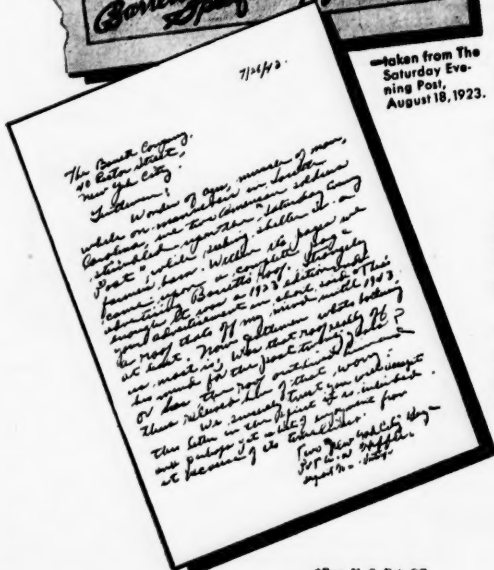
DELTA MILWAUKEE Machine Tools

TEAR OUT AND MAIL THIS COUPON FOR FULL DETAILS

THE DELTA MANUFACTURING COMPANY
706M E. Vienna Ave., Milwaukee 12, Wis.

Please send me your new catalog giving full details on the Delta Chip-Breaker Grinder and your full line of low-cost machine tools.

Name.....Position.....
Company.....
Address.....
City.....(.....) State.....
Zone.....



We'd like to thank two soldiers and a farmer in South Carolina

Somewhere in South Carolina, during recent Army maneuvers, two soldiers took shelter in a farmer's barn. There they came upon a copy of The Saturday Evening Post, dated exactly twenty years ago.

They leafed through the yellowed pages and paused over a headline: "There's a roof that's off my mind until 1943 at least."

It was an advertisement for Barrett Specification Roofs.

The coincidence of dates was striking, but soldiers are practical fellows, so they wrote us a letter to find out just how good was that promise of twenty years ago?

Actually, the advertisement of twenty years ago might just as well appear today. The basic story has not changed. Barrett Specification Roofs are still bonded against repair

and maintenance expense, and still outlast their bonds by decades.

But today, the Barrett story has even greater significance to architects, engineers and others concerned with building maintenance. For Barrett is supplying dependable roofing and waterproofing materials for new Army barracks and depots, for giant industrial plants, for war housing units and other essential structures, as well as for the all-important maintenance of all types of existing buildings necessary to our war effort.

In these critical times, Barrett Specification Roofs continue to provide a degree of certainty of performance unsurpassed in the building industry. Consult with us or your Barrett Approved Roofer on any roofing or waterproofing problem.

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

2800 So. Sacramento Ave.
Chicago 23, Ill.

Birmingham
Alabama



MANUFACTURERS RECORD FOR

Let's get rid of the mystery

Postwar Planning is just as simple as

A • B • C

A

Talk over among yourselves what you ought to make and how and where.

B

Call in our engineers who have been laying out plants, providing production machinery and buildings for important manufacturers for 25 years. Let them talk over your problems with you in detail.

C

Then let us go ahead, working out detailed plans and estimates. We have served others faithfully and in confidence. We can do the same for you. We suggest early action to avoid crowding by your competitors.

**The H.K.
Ferguson
Co.**

**ENGINEERS AND BUILDERS
CLEVELAND NEW YORK**

SABAT S. PARHAM.....Chairman of the Board
EDWIN F. PARHAM.....President and Gen. Manager
WILLIAM P. GHOLSON..Vice-Pres. and Sales Manager
ANDREW J. WATKINS.....Treasurer
STRAUGHN H. WATKINS..Sect'y and Asst. Manager

CAROLINA BAGGING COMPANY

HENDERSON, N. C.

Prior to 1936 this business was confined exclusively to the manufacture of jute bagging for covering cotton bales, which at that time had grown to such proportions that the Carolina Bagging Company was, and is today, the largest producer of jute bagging for covering cotton in this country.

Since 1936 the business has expanded considerably in other lines, such as cotton felt for use in the upholstery and mattress trade, sisal pads used extensively in the manufacture of inner-spring mattresses, and jute felt used for insulation and upholstery in the automotive trade, and jute under-rugs and carpet lining.

We are not manufacturing sisal pads at this particular time due to the fact that the government has prohibited the use of sisal fiber in the manufacture of pads in order to conserve same for the manufacture of rope and twine essential to the war effort. There is also only a small volume of jute felt being manufactured for the automotive trade due to almost complete conversion of this industry to war materials, but we expect to resume extensive operations in both these lines with the ending of hostilities, or the removal of restrictions by the government.

This business was organized in March 1908, and from a small beginning has grown to a volume of several million dollars annually.

CAROLINA BAGGING CO.

Edwin Fuller Parham, President & General Manager

The Lady with the Lamp



Jefferson County Hospital, Birmingham, Ala.

never dreamed of such facilities and comforts as our modern hospitals provide. Operating rooms, clinics, x-ray and radium departments, nursing schools, ambulances — care is never too little or too late for in-patients or out-patients. We would be well content to have our civilization judged by our hospital system.

Shown in the illustration is one of these institutions built by DANIEL. If the citizens of your community are contemplating the erection of a new hospital, or the extension or modernization of one already in existence, we have much useful and interesting information which we shall be glad to place at their disposal.

DANIEL CONSTRUCTION COMPANY, INC.
GREENVILLE, S. C. BIRMINGHAM, ALA.





WE HAVE THIS TO SAY ABOUT

Molybdenum

An electric personality, we'd say of molybdenum.

Not that Moly doesn't have many other good traits but right now her radiating features are especially bright against the widening horizon of electronics.

Such a personality interests us greatly from the point of view of a mutual world to conquer. The expanding possibilities for postwar electronics and electro-dynamics open before both molybdenum and aluminum.

Does this make the two metals bitter rivals for post-war markets?

Not at all. Each has a function with electricity in which it excels the other—the one transporting, the other transforming. Each metal, as it extends the applications of electricity, makes work for the other. Together they can create hundreds of new things and thereby millions of new jobs. This is true also in fields other than electrical.

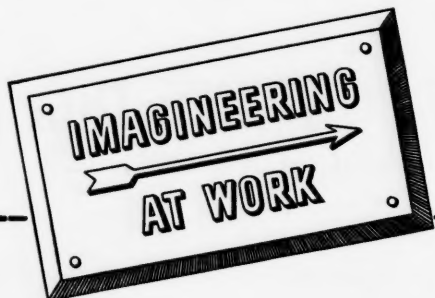
• Every time you as an Imagineer devote an eighth day

of thought beyond the effort of war to figure out a new product to build, or a way to make an old product more salable by making it lighter or more resistant to corrosion or more appealing because of a lustrous colored finish, you have won a part of the peace-victory, without which the war-victory will be a catastrophic disillusionment.

And if you use an Alcoa Aluminum Alloy, as you certainly would, to obtain lightness with strength and resistance to corrosion, then in all probability your product will be cheaper than you think. For Alcoa has met the needs of war not only with tremendous production but also with lower prices, much lower, indeed.

When more people can afford to buy your new product, more people will be employed to make it.

And that is a pattern for maintaining postwar employment. ALUMINUM COMPANY OF AMERICA, 2109 Gulf Building, Pittsburgh, Pennsylvania.



Alcoa Aluminum



CHUNGKING

IRAQ

TUNIS

Tomorrow-Too!

ATTU

ALEX

MURMAN

CLARK
FORK TRUCKS

Will
Serve Industry
and
Save Manpower
in
Material Handling

NEW GUINEA

BIZERTE

DARWIN

ALGIERS

NEW DELHI

MIDWAY

PORT MORESBY

BERNO

ICELAND

CALCUTTA

RL HAR

ARCE

PALERMO

NAPLES

BUR

TARANTO

BUY
MORE
BONDS



CLARK TRUCTRACTOR

DIVISION OF CLARK EQUIPMENT COMPANY

BATTLE CREEK, MICHIGAN, U.S.A.

NOVEMBER NINETEEN FORTY-THREE



Good Fortune

There's good fortune in these "lines."

For these are the lines of sturdy, shining steel... the lines of the Southern Railway System... that criss-cross the broad strong palm of America's Southland.

They are *fighting* lines today, humming with cargoes that are helping to speed final Victory. Oil and timber... jeeps and tanks... bread and beef and bullets for America's fighting men.

But these busy Southern Railway lines will not always be dedicated to the grim tasks of war. A brighter day is ahead for all... when the wealth and riches of

a stronger, greater Southland will add to the security and happiness of free men at Peace.

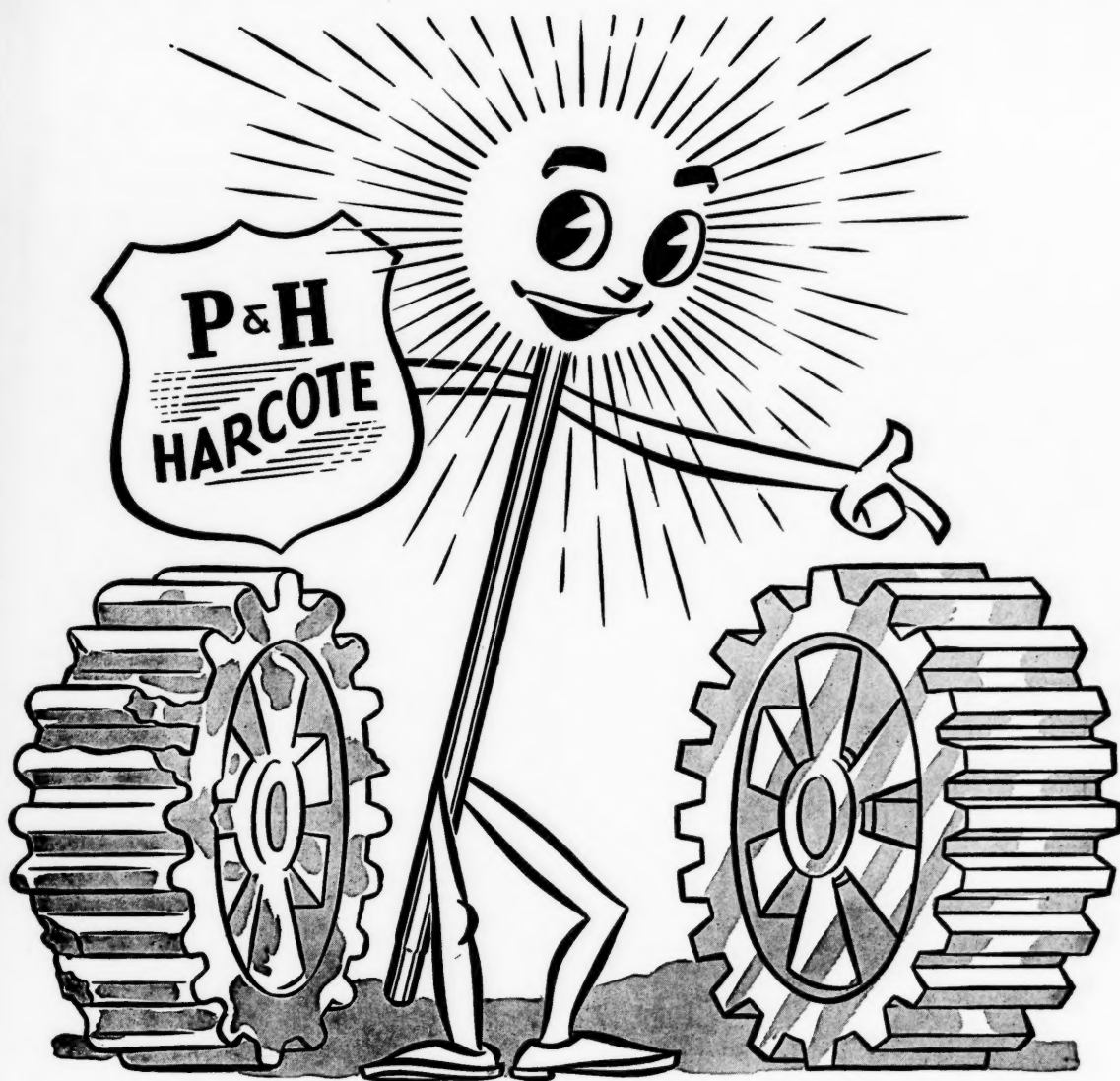
New products will come from Southern research laboratories. New abundance will be yielded by fertile Southland farms and fields. New and better things will pour from the South's modern factories.

And they will flow over the stout steel lines of the Southern Railway System... bringing good fortune to the South and to all who share our hopes for the future.

Ernest E. Horn
President

SOUTHERN RAILWAY SYSTEM

The Southern Serves the South



MEET THE CHAMPION "BUILDER-UPPER"

When it comes to rebuilding worn parts, Harcote is the real champion electrode that gets in there—puts on a hard surface that's tough and long-lasting. An important time and money-saver, too! When worn parts would take weeks to replace—Harcote does the job quickly—at a fraction of the new part cost—gives you a part that will outwear the original.

Harcote is ideal for welding on carbon steel, low alloy and high manganese surfaces.



*A New Star Has Been Added to
P&H's Army-Navy "E"*

See your P&H representative for procedures. Also ask about P&H electrodes for any other welding requirements.



Also ask for information on
P&H A.C. and D.C. Welders

General Offices and Factory:

4427 West National Avenue, Milwaukee, Wisconsin



Canadian Distribution: The Canadian Fairbanks-Morse Company, Ltd.



The women

They know that this is war, and that the price of victory will be high. They have sent off their sons, brothers and husbands to the armed forces, and they are coming out of beauty shops and offices, stores and homes, and are taking war jobs in steel mills and shipyards. The deft hands that in peacetime wielded the skillet and the dryer are now managing the boring mill and the welding torch—and to very good effect.

Ever try keeping traffic flowing smoothly in and out of the main entrance of a big steel plant? Ever knock a "hot top" off an ingot? Or rough-bore a gun forging? Or weld a ship's hull? Not women's work? Women are every day doing these and dozens of other jobs in Bethlehem shipyards and steel plants, and doing them superbly.

At Bethlehem and Lackawanna, at Baltimore, at Fore River and Hingham, on the Pacific Coast—and at other locations where this company operates plants and shipyards—former clerks and beauty-shop operators, sales-girls and housewives, are applying themselves to their new, challenging tasks with wonderful spirit and skill. They are helping to swell the mighty output of steel and ships and ordnance. The results of their efforts are being painfully felt in Tokyo and Berlin. Hats off to them!



Woman "patrolman" at a Bethlehem steel plant. Here is a job calling for plenty of tact and skill! Women are serving on patrol duty at gates, parking lots, offices, and other locations with efficiency and aplomb.



Once a dancer, now she runs a machine in a Bethlehem shipyard.

This "buggy" operator is hauling naval shells in a Bethlehem plant.

Upswept hairdo, red finger-nails, don't keep this girl welder from doing a man-size job at a Bethlehem shipyard.



ZEKE and Rip don't need much "book larnin'" to figure that "more trains than Towser's got fleas" pass their place every day — "a whole sight more than used to before the war" — that passenger trains are "plumb full" of soldiers, and that freights are loaded down with the "goldarndest fightin' contraptions you ever seen."

It's amazing to Zeke and Rip — the number of trains speeding by now-days, right below in their valley. And it's just as amazing to a lot of other people, who don't see so many trains, nor keep "count" of them . . . It's almost unbelievable that the American railroads are moving 1,335,000 tons of freight a mile every minute — a new freight train is started every four seconds — 21,600 new freight trains every day. And that the railroads are carrying 2,000,000 troops in organized movements and 2,000,000 on furlough each month, plus tremendously increased civilian travel. The Norfolk and Western is carrying its full share of the load in this war — for instance: moving more freight in ton-miles per mile of road than any other railroad of comparable size in the United States.

Yes, Zeke, most any time — day or night — that you look down into the valley, you can holler: "Gosh-a'mighty, thar comes 'nother 'un!"

BUY MORE WAR BONDS

NORFOLK and WESTERN



Railway

P R E C I S I O N T R A N S P O R T A T I O N

NOVEMBER NINETEEN FORTY-THREE



*One of these days I'll turn in
my jeep for a job!*

• That's what Joe and 10 million others in our armed forces are counting on today. They are fighting harder, with courage and determination, confident that in the America of the future they will be given an opportunity to work and grow . . . will have a part in the peacetime progress of the land they love.

It is our job to assure them now that they will find this opportunity . . . that Joe and his 10 million buddies will have a place beside our millions of home front soldiers in preserving and expanding the free enterprise system that made America great.

Our organization, like our fight-

ing men, has placed the winning of the war above all else. But we are using all the resources at our command to be ready for Victory when it comes . . . to have a real welcome—jobs—for our fighting men when they return. It can be done by preserving and extending the free enterprise system that made America great.

THIS ADVERTISEMENT PUBLISHED BY

UNITED GAS PIPE LINE COMPANY



The Gulf South

Working { Toward Winning the VICTORY TODAY
Toward Winning the PEACE TOMORROW

A Natural Gas transmission Company built in peacetime . . . now dedicated to serve wartime fuel requirements throughout the Gulf South.

FOR TEXAS, Mail received at: Beaumont, Dallas, Fort Worth, Houston, Longview, San Antonio and Wichita Falls. FOR LOUISIANA, Mail received at: Baton Rouge, Lake Charles, Monroe, New Orleans and Shreveport. FOR MISSISSIPPI, ALABAMA AND FLORIDA, Mail received at: Jackson, Mississippi.

COPR. 1943. UNITED GAS PIPE LINE CO.



ANYTHING any industry can do to help the southern farmer to help himself toward a more prosperous future is just good business.

That's why we place so much emphasis on planned farming in our advertising and through literature prepared by our own agricultural experts.

This plan service concerns itself with the disposition and kind of farm buildings, the rotation and diversification of crops, the improvement of livestock, the solving of marketing problems. Thousands of southern farmers are studying these plans today and setting their sights on the farms they mean to have tomorrow.

Who benefits besides the farmer, when he improves his lot? We do, of

course, because countless new buildings mean tons of famous U-S-S Tennesseal Roofing and Siding Sheets, miles of U-S-S American Fence and the innumerable items made from our steel which pass through the hands of our customers and *yours*.

But the benefit has only its beginning there. For every new dollar the farmer can spend on his home, farm, self and family will pass from dealer to wholesaler to some manufacturer somewhere. Directly or indirectly, all the South will share.

To any industry, merchant or banker who would like to know more about this effort we will gladly send copies of our literature, answer any questions we can.

U-S-S Steel Products manufactured in our mills include:

- Rolled, forged and drawn steel products.
- Structural shapes, plates, bars, small shapes, agricultural shapes, tool steel, strip, hoops, cotton ties.
- Black, galvanized and special finish sheets.
- Wire and wire products.
- Reinforcing bars.
- Rails, track accessories, axles and forgings.
- Culverts, Panelbilt prefabricated steel buildings, cold-formed steel sections.
- U-S-S High Tensile Steels and U-S-S Abrasion-Resisting Steels.
- Semi-finished products, pig iron and ferro-manganese.



TENNESSEE COAL, IRON & RAILROAD COMPANY

Birmingham, Alabama

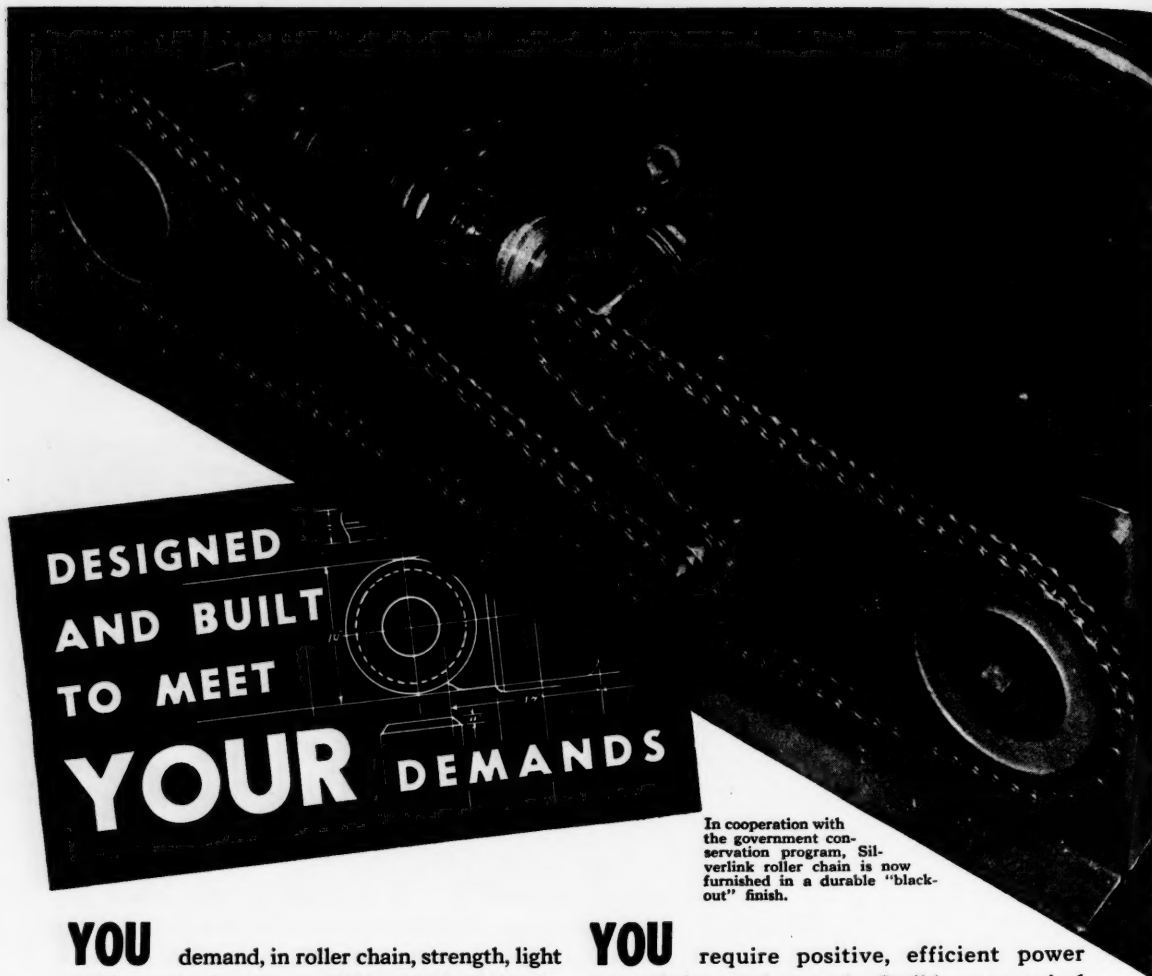
This flag awarded to manufacturing divisions of Ensley, Fairfield and Bessemer Works



UNITED STATES STEEL

NOVEMBER NINETEEN FORTY-THREE

19



**DESIGNED
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YOU demand, in roller chain, strength, light weight and stamina to withstand shock loads. **LINK-BELT'S** strict standards of material and production methods coupled with exclusive design features, assure exceptional strength-to-weight ratio, and uniformly high efficiency. The exclusive curled roller cushions any shock and greatly lengthens the life of the chain.

YOU require low first cost and low upkeep. Skilled engineering applied to the design and manufacture of Silverlink Roller Chain assures economy in both installation and operation.

YOU require positive, efficient power transmission and smooth, flexible, economical operation of conveying equipment . . . **LINK-BELT Silverlink ROLLER CHAIN**, with its sound basic design, all-steel construction and precision manufacture, meets your needs completely!

YOU can profit through the broad experience of **LINK-BELT** chain engineers—let them help you bring your drives and conveyors to peak efficiency. Write for Roller Chain Engineering Data Book No. 1957.

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Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Toronto 8, Baltimore 1, Washington 5, D. C. Offices, warehouses and distributors in principal cities. 6225





Million dollar coal preparation plant at the Victory Mine, Pyramid Coal Corporation near Terre Haute, Indiana, where Indiana No. 3 seam coal is mined. The conveyor from the mine slopes 18° above ground and 16° underground. The conveyor is approximately 700 ft. long of which about 500 ft. is underground. Capacity 600 tons per hour at 375 ft. per min.

FLEXCO HD RIP PLATES **BELT FASTENERS**

IN any type of material handling service an unforeseen accident may damage a conveyor belt and result in a costly service interruption unless the belt can be repaired without delay. In such cases Flexco HD Rip Plates and Belt Fasteners frequently save the day.

Such was the case at the Victory Mine of the Pyramid Coal Corporation where a heavy jack pipe inadvertently left in one of the mine cars ripped the 8 ply 48" conveyor belt for a distance of 1450 ft. The accompanying pictures show how the Pyramid Coal Corporation and the local Industrial Distributor restored the belt to service without a serious loss in production. The repair crew had the belt back in service within 30 hours after the accident.

If you operate conveyor belts and are not familiar with the use of Flexco HD Belt Fasteners and Rip Plates you should know about them for they may help you out of a difficult situation. We shall be pleased to send you bulletin F-100.



BULLETIN NO. F-100 gives complete information and prices on Flexco HD Belt Fasteners and Rip Plates with detailed information on how to fasten or repair conveyor belts in any thickness from 1/4" and up and in any width.

Write for your copy

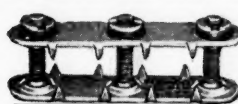
FLEXIBLE STEEL LACING CO.



The illustration above shows the crew repairing a portion of the belt where the upper plies ripped and then the tear offset a few inches and the lower plies were ripped. Two rows of fasteners and rip plates were required for repairing this section of the belt. The rip was first "tacked" together every few feet with a rip plate.



The above illustration shows the fasteners and rip plates applied to a portion of the belt where the rip was clean and straight.



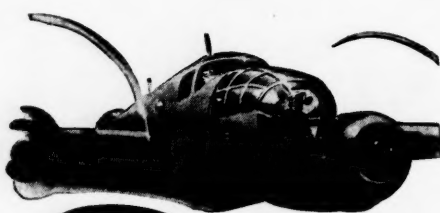
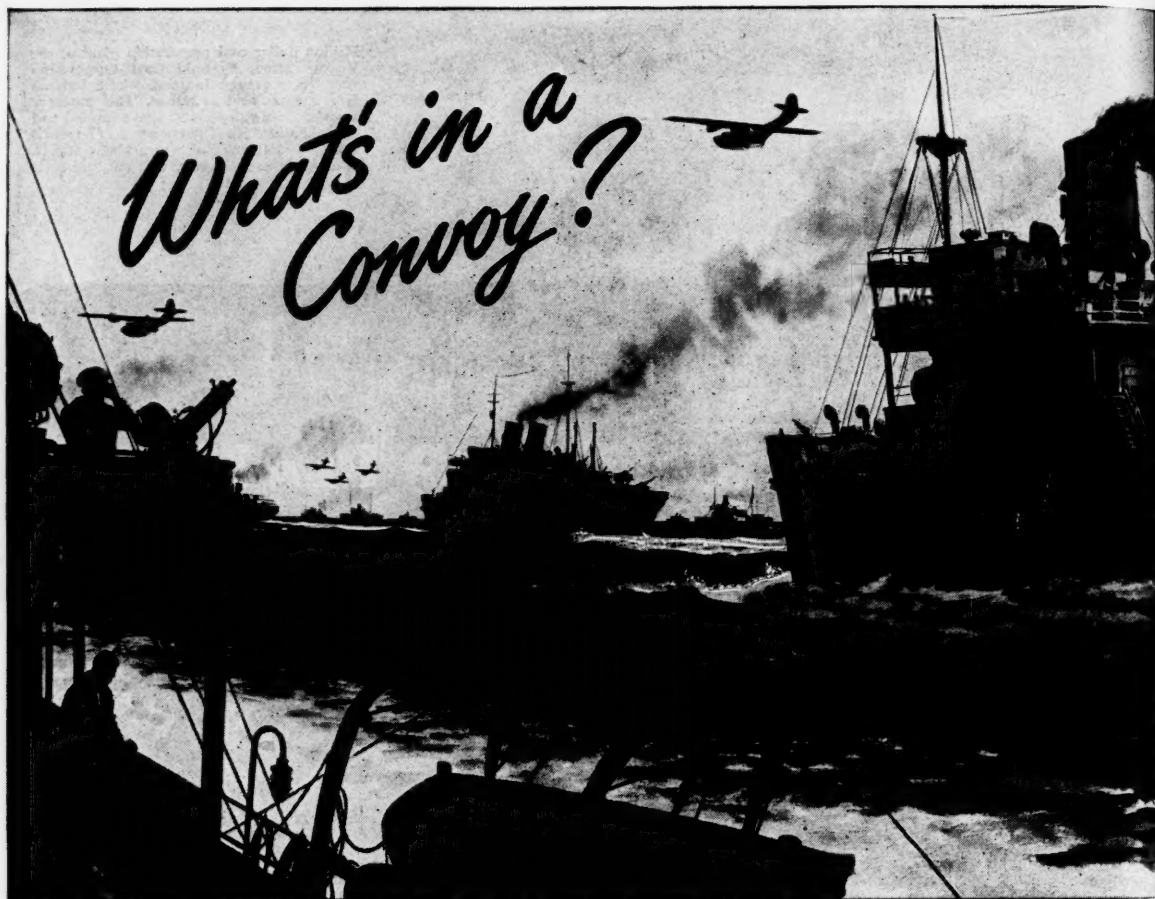
Flexco HD Rip Plate



Flexco HD Belt Fastener

In repairing the 48" conveyor belt 4600 Flexco HD Belt Fasteners and Rip Plates, as illustrated above, were used.

**Flexco HD Belt Fasteners and Rip Plates
sold by supply houses everywhere**



Manufacturing for War

The manufacture of aircraft equipment for the Government and the manufacture of Burroughs figuring and accounting equipment for the Army, Navy, U. S. Government and the nation's many war activities, are the vital tasks assigned to Burroughs in the Victory Program.

★
BACK THE ATTACK!
BUY MORE WAR BONDS
★

As a noteworthy instance, 700,000 different items of equipment and supplies in varying quantities crammed the convoys that carried American armies to conquest in North Africa—250,000 different items of ordnance; 100,000 different Engineer Corps articles; 68,000 different items of medical supplies and drugs; 10,000 different items for the Signal Corps; 390 different articles of clothing.

Countless hours of planning and figuring, as these statistics suggest, are essential in establishing the types and quantities of items needed . . . amassing them at the assigned embarkation points . . . dividing them strategically among the ships, to minimize the danger of crippling loss of any one item.

Allied superiority in the science of supply is increasingly obvious day by day. To the vital figure work involved, Burroughs adding, calculating, accounting and statistical machines bring a speed and an accuracy indispensable to the magnitude of the undertaking.

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Photo Courtesy Ingalls Shipbuilding Corporation

WITH INSULATION

Efficient insulation is an important requirement in the warships and cargo vessels America is building today. Modern, improved insulating materials, properly specified and applied, help utilize every ounce of steam produced, protect working and living quarters from the intense engine heat.

A considerable part of Badham's manufacturing, engineering and installation facilities are at present employed in vital shipbuilding work. But Badham services—and experience—include every requirement of insulation, industrial as well as for institutional buildings, frozen food plants, office buildings, homes and

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That is the advertisement
which this company will run in
National Magazines and Newspapers
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BUY MORE
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OFFICES IN PRINCIPAL CITIES



"What Enriches the South Enriches the Nation"

JUSTICE

Justice is visually portrayed as a blindfolded woman holding a set of evenly balanced scales. The blindfold is significant. It exemplifies the fairness of the holder of the scales. Their balance is assured. American progress and development have been based on JUSTICE. In spite of this fact, government for political purposes now loads the scales on the side of organized pressure groups.

The government has again taken over the coal mines of the nation. It has negotiated an agreement with the United Mine Workers Union. The government of the United States has made itself one of the two parties to a bargaining agreement with a small, though economically important, segment of our population. This government—and remember it is supposed to govern for the welfare of all of us—places itself on a plane of equality with a small special group of our citizens at the same time that it virtually confiscates the property of those citizens who run the mines of the country. But it does not stop there. It relies on the patriotic citizens who manage the operation of the mines to continue to do so.

This is the latest action that carries on to its conclusion a series of previous actions typifying either the opportunism or the socialistic attitude of the government. It seems to be entirely influenced by the old saying, "The wheel that squeaks the loudest gets the grease."

There are fundamental principles concerned in this UMW-USA agreement that make all thoughtful men wonder whether it is merely opportunistic or whether it is planned socialistic, (if other words are wanted as a substitute use communistic, fascistic).

The UMW got their agreement. They got it from the USA. They got it because the USA seized the mines from their property owners. In order to regain their mines these property owners must accept the terms of this agreement which they had no part in negotiating.

Is this "collective bargaining"?

Why did not the government seize the UMW?

In answering these two questions it must be remembered that the mine operators were perfectly satisfied with the prices that they received for their coal. They were perfectly contented to continue the larger efforts previously planned to increase production. They were reconciled to the war conditions that took many of their skilled men into the armed forces. They have been putting back a part of their profits in plant improvement for the benefit of their workmen and using practically all of the remaining balance in the purchase of war bonds. These operators work six or seven days a week without thinking about how many hours there are in a day. Is it fair that their property be taken from them and an agreement made with a labor union that will be eventually thrust down their throats?

The government never did, and we hope never will, bargain with a group of our soldiers through an appointed official subject to the approval of an appointed board. It passed a law which contained provisions for its administration. Under the stress of a serious national danger the Selective Service Act represents the proper behavior of a democratic government under the law of the land. It dignifies government and proves the willingness of its citizens to meet their obligations.

Negotiations by the government with a special group, which is virtually controlled by an arrogant man, not only degrades the government in the eyes of its citizenry, but shows a weakness in that government that must be corrected if this war is to be won.

It is a disgraceful fact that our government has stooped to bargain with a group. If it bargains at all, it should be with another sovereign state. It is dishonest for it so to bargain, and then demand acceptance by the lawful property owners of the bargain made before their property is returned to them.

Shades of our Fathers! We hear them cry, just as we now cry, "Give us justice under the law."

SICK AND TIRED

Germans, Japanese and even labor union members in our own country may like to be regimented, but we, millions of us, are sick and tired of it.

There are millions of Americans who are sending their sons to battle and possible death and at the same time are expending their brains and their money to carry this war on to complete victory. Unfortunately, for the Nation, these citizens do not control votes other than their own. These men of real moral fibre, many of whom served their country in the last war and have sons serving in this one, should not be ignored by, and abused by, our administration and bedeviled by little boy and girl investigators who do not even know the first sentence of the Declaration of Independence.

We are sick and tired of a system of government that has been built up to supersede constitutional forms and that appoints pipsqueeks to pry into the business and private affairs of honorable men.

We are sick and tired of government incompetence and extravagance, but above all we are sick and tired of watching the farce that our politicians, with a few very notable exceptions, stage for the apparent benefit of dupes, such as they consider us to be, but which in reality is only camouflage for their under-cover dealings with pressure groups for the purpose of securing votes.

We are sick and tired of postwar planning by nepotists and sycophants, self-styled idealists and half cooked frankfurters.

Although ardent admirers of the British Commonwealth of Nations, we are sick and tired of aping regulations that are copied from them and inflicted on us by our government simply because they are logical and practical in a land that, in an economic and geographic sense, is almost entirely the reverse of ours.

We are sick and tired of doing two, three or four jobs today where we did one several years ago. We do these in order to support our families, replace soldiers, pay taxes and buy bonds while bureaucrats and autocrats tell us what we must, or must not do.

We are sick and tired of lavishing on the people of other nations what is denied to us. We cite two examples: Italy "double-crossed" Germany in the last war and that was before Mussolini. It "double-crossed" France and England in this one. Why should we feed the people of such a nation at the expense of our own citizens? Argentina, a passive ally of the Axis powers, is receiving exports of vitally essential materials. One among the many is newsprint. Why should the publishers of our great daily papers be denied the paper on which to print the news for our own public while that goes on?

We are sick and tired of the government dishing out to us through the press and radio half truths or deliberate propaganda.

We are sick and tired of having our great nation run, and its established institutions perverted, for

the benefit of a clique who stole the leadership of a great political party under false pretenses.

We are sick and tired of the constant talk that is fomented for political purposes about "class," "race" and "religion."

We are sick and tired of having the domestic affairs of our nation run for selfish purposes by petty politicians.

WAR WORKERS

Every man or woman in America, in a mill, mine or factory, on a farm or in a home either is, or can be, as important to the prosecution of the war in their minds and hearts and the expenditure of their efforts as the man, or woman, who works in a so-called "war plant."

There is no patriotic distinction between a "war plant" worker, a farmer, or anyone else who works to keep our national economy on an even keel so that ALL OF US can contribute our full share to the successful prosecution of the war.

A doctor is a war worker. He contributes his individual share towards maintaining the health of our people.

A lawyer is a war worker. Harassed by a multiplicity of government edicts as well as laws, he does his share towards keeping our industrial machine functioning.

A bookkeeper is a war worker whether he keeps books in a government-styled "war plant" or not. He is performing a function that is demanded by the Treasury Department, the Department of Commerce, the Department of Labor and goodness only does know how many other departments and separate agencies.

Every worker on a railroad, every truck driver, is a war worker. Materials are useless if they lie in storage in the plant that produces them.

Every man or woman who sews buttons on clothes or runs a little corner store is a war worker. Without them the government-styled "war worker" would not have clothes to wear or food to eat.

Even the bootblack who shines your shoes is a war worker. He is prolonging the life of the shoes that he shines and, by conservation, is adding his bit to the war's demands for shoes.

But how about the real war worker, not the fellow who slouches through the streets of our towns and cities in dirty clothes in an attempt to identify himself as a patriotic citizen? How about the fellows who face death twenty-four hours a day and who endure hardships and privations, not to escape death, but to court it?

In every part of the world our men are courageously offering their lives so that our nation may be preserved, while at home a political regime is glorifying certain kinds of workmen. It is time to take our hats off to the fellows who are really making the sacrifices and to realize that all of us who applaud their efforts, all of us—man, woman and child—who do the best that we can are "war workers."

THANKSGIVING

Criticism of the domestic affairs of the country has been an unpleasant duty of its thoughtful citizens and because they are thoughtful and conscientious most of them have expressed this criticism, in speech or in print. But the same thoughtful critics are the leaders in their praise for the conduct of its diplomatic relations with our Allies and for the magnificent performance of the armed forces of the nation.

Just as every honest man hates deceit and subterfuge he loves the abdominal investiture that refuses to admit defeat. He may not approve of prize fighting, but deep down in his heart he admires the fellow who can get up on his feet after being knocked down by a foul blow and "lick the stuffing" out of his opponent. This same man also admires the thought and mental agility that arranges agreements that are to the advantage of every party concerned.

The State Department has had a difficult course to pursue both in the Americas and abroad. In the Americas it had to convince our sister nations that we, as big brother, did not want to boss them but wanted to help them. In Europe and Asia it had to convince the nations and commonwealths with which it dealt that it had no ulterior purpose, that it had one idea and one ideal. Its idea was to win the war and its ideal was to blot out future wars from the face of the earth. It has done and is doing this job.

Americans tip their hats to the State Department with respect. They salute their armed forces with applause and deep gratitude. Both deserve their unstinted admiration and confidence.

When careful thought is given to the problem that faced the Navy after Pearl Harbor, the stupendous task that has been accomplished and the marvels that are being done, can not help but be recognized. The officers of the Navy did the planning and are doing the commanding but their task would have been impossible without the men and boys who volunteered for a service that they knew would not be just another picnic.

The Army had a tough job when it was brought face to face with war with Germany, Japan and Italy. It was developing techniques of modern warfare based on recent foreign campaigns on land and in the air. It was developing these techniques, but it was not satisfied with them. The result of this development is now being made apparent to our foes. The development of the Army's power will never cease until the war is won.

Comment on the Marine Corps is superfluous. Everybody, everywhere knows that these amphibious soldiers are the best fighting men in the world.

We at home have many things to be thankful for. Among the many, we have the finest thing in the world to be thankful for—an ever increasing respect for our own sons.

HOOF AND MOUTH DISEASE

Our public servants, elected, appointed and self-appointed by marriage, clutter the transportation systems of our country and waste the newsprint of our publishers with their attempts to stay in the limelight before a credulous people.

These public servants are not only afflicted by the hoof and mouth disease; they make all the rest of us suffer as well.

The great American public is not easily aroused to anger. It has accustomed itself to be long suffering, but its patience is tried when it is told, by the highest authority, that geography is a good thing for it to learn, at the same time that it is attempting to locate its sons and brothers scattered all over the face of the earth.

The American public, white and colored alike, who have helped to make the kind of life that we know, sincerely deplore the racial antagonism that has been created from the background of a Hudson river estate, to say nothing of the political motive involved.

The American public is dismayed to read an article appearing in a great national magazine and stories published simultaneously in the daily papers, both expressions of opinion by the same highly placed government official, which basically contradict each other. The magazine article advocates the perpetuation of individual enterprise while the newspaper accounts advocate government ownership of the greatest private enterprises in the nation—the railroads. Government operation of railroads during World War I is still fresh in the minds of a great many of us.

The American public is perplexed by the variety of suggestions and regulations offered for its consumption almost daily as to how and why coal and oil are to be produced and distributed to it. It wants statements that state facts. It wants to know whether the operators of the mines and wells, protected by the laws of the land, will be permitted to produce, and whether their products will be fairly apportioned between our people and those of foreign lands.

The American public would like to know why there has been such a tremendous turnover of publicity of "doctors," both official and unofficial, who were assigned to jobs that were supposed to keep this hoof and mouth disease under some kind of control. It would like to know why they have all failed. There have been quite a few of them during the past ten years.

The American public wants to be told that the servants it has placed in authority and those who have assumed authority will stay at home (like the rest of us) and attend to their own business. This business does not consist in keeping the country in continual jitters by talking about everybody and everything to the point of stifling incentive and instilling dread of what is yet to come.

What of the Railroads' Future

?

TWENTY-FOUR centuries ago, the great Chinese philosopher, Confucius said, "If a man take no thought about what is distant, he will find sorrow near at hand."

Today, it can be said, with equal sureness:

If the railroads take no thought about what is distant, we will surely find sorrow near at hand—because the tomorrow that will be the post-war world may be nearer than we think.

It is for this reason alone—not to pose as a clairvoyant; not to waste our time with beguiling dreams—that I want to present one concept of what lies ahead of us and, even more important perhaps, one concept of what we must do if our hopes for the future are to be realized.

Let's strike a post-war balance sheet for the railroads. Let's list a few of the good and the bad conditions that we already know they will face when this war has ended in Victory.

On the debit side of the ledger, we will find these items:

The railroads will be in the worst physical condition they have ever been in; worse even than they were at the end of World War I—because they are now being used much more intensively than they were during that war period.

They will need rail, ties, ballast, cars, locomotives, tools, machines of every description, repair parts galore, and a thousand other things that have been denied to them by the restrictions of war.

They will be saddled with a continuing load of taxes that would have been called fatal just a few years ago.

They will have the highest level of wage rates in all their history. These, together with iron-clad working rules, will continue the labor cost of railroading at its all-time peak.

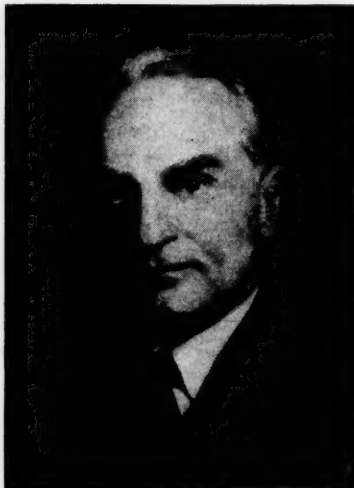
They will be regulated by government, as they are now, in respect to almost every detail of

*Southern's
president
forecasts
they will
lick their
post-war
problems--*

*but they
will need
imagination
plus courage*

By

ERNEST E. NORRIS
President,
Southern Railway System



their income and outgo, leaving but little freedom for management to make adjustments quickly to meet changing conditions.

They will be faced with competition, the like of which they have never encountered before—huge passenger airplanes, sky freighters; improved buses, giant trucks, fleets of new coastal and inter-coastal ships, war-built pipelines, government-nursed river carriers, and private automobiles and private airplanes of fantastic efficiency; all these to compete for the railroads' passenger business and the cream of their freight traffic.

What's more, the cards will probably be stacked against the railroads in regard to much of this intensified competition, because the railroads will continue to pay all of their costs of doing business out of their own pockets, while their competitors in the air, over the highway, and on the water will continue to have the benefit of huge subsidies out of the taxpayers' pocket—yours and mine.

On the credit side of the ledger, we will find these items:

They will have the appreciation and the good-will of the American people for a war job superbly done. The significance of this item is its promise of fair treatment of the railroads by the agencies of government; perhaps the eventual coordination of the various forms of freight and passenger transport or, at least, some semblance of equality in the competitive situation.

They will be in a position to capitalize on the priceless lessons they have learned during the war—how to do more with less; how to cooperate with shippers and receivers of freight to use the railroad plant more intensively and more efficiently; how to work together for the common good.

Their financial set-ups will be somewhat strengthened by their vigorous efforts to reduce their funded debt with the returns from

the abnormal load of wartime traffic.

And they will have the advantage of swinging into post-war problems with their organizations and personnel fairly intact—and well conditioned by their experience in “doing the impossible” over and over again, all through the war period.

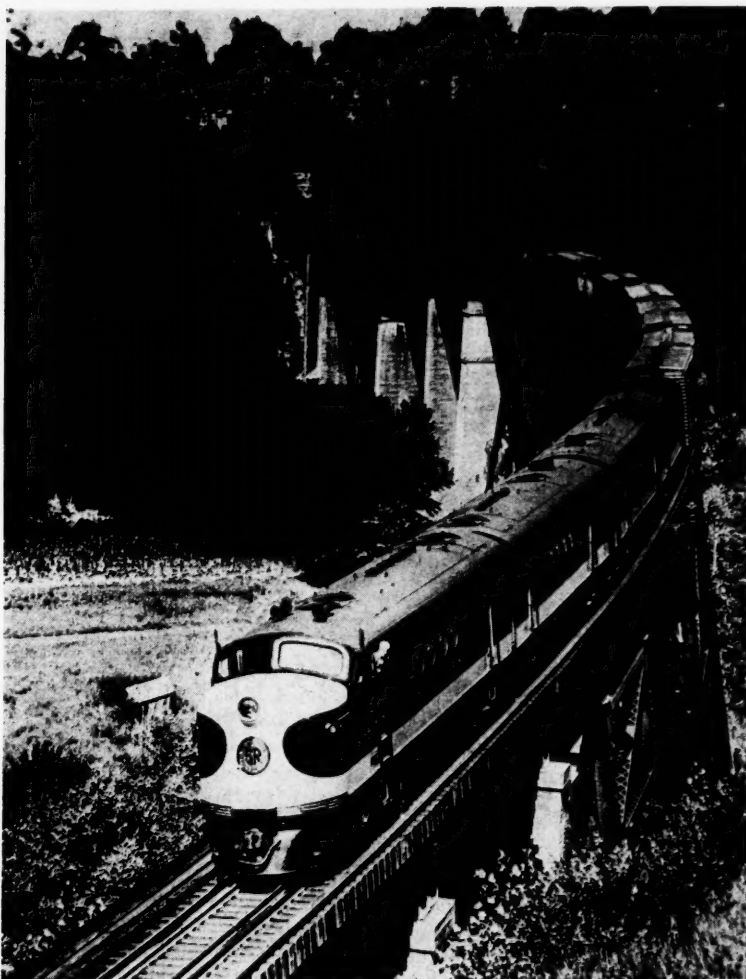
Add up these credit and these debit items; range them one against the other, and you will inevitably end up with disturbing fears about the future of our railroads under our present system of private ownership and operation. Yet I dare to predict, without reservation, that the railroads will lick their post-war problems to a frazzle; that they will go on, as privately owned and operated agencies of transport, to higher levels of usefulness and greater success than they have ever known before.

For years now, we have been reading about a hardy old perennial called “the railroad problem.” It seems to me we have always had one. For years we have read—and said—that what the railroads need is this law or that law; this kind of regulation and taxation, or that kind of freedom; this atmosphere or that in which to operate successfully.

But I wonder if we are not getting the cart in front of the horse when we talk this way? I wonder if we have dug deeply enough to get beneath wishful thinking; down to the bedrock on which we must lay the foundation of any lasting solution of our problems? I wonder if we are not engaging in the pleasant, but misleading, pastime of always looking without, instead of within, for the solution of our problems? Frankly, I find myself asking these questions quite often lately. And the clear answer I invariably get is this:

What these human entities called railroads really need, to meet any problem that may confront them, is the exercise of their God-given attributes of—imagination and courage.

These are two priceless, hidden assets that can more than balance the railroads’ post-war ledger. And I am staking my future on the intelligent employment of imagination plus courage in the trying



Difficult times are ahead for the railroads in the days between the end of the war and restoration of a peacetime economy, it is pointed out by Ernest E. Norris, president of the Southern Railway System, and to compete successfully in the years to come, he says they must: Apply imagination to every operation, facility and method of doing business; be free of venerable “do’s and don’ts that circumscribe thinking; avoid the rut of rigid behavior patterns; mark many a sacred cow for slaughter; apply modern yardsticks to every act, statement and thought in “this business of railroading.” “As much as we would like to do it, we won’t be able to scrap our conventional equipment immediately and gridiron the nation with shiny streamliners,” Mr. Norris declares.

days to come.

Before we go too far in pinning our hopes on these abstractions, let’s be sure that we agree on what we mean by them.

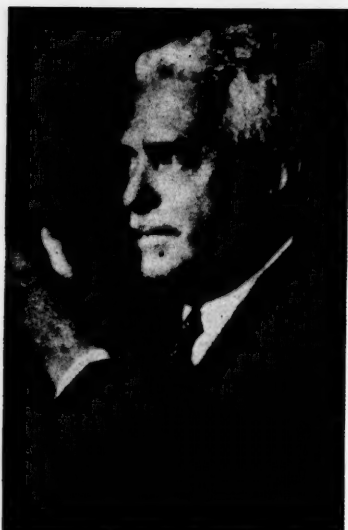
Imagination consists in taking parts of our conceptions and combining these parts into new and

more useful forms. It creates by reason. It has strong emotion as its activating cause. And, it aims at results of a definite and weighty character.

If we agree that what we mean by imagination is the capacity—the gift, if you please—to think constructively; to make the most out of the materials and resources at hand; to build new and more useful things out of what we already have, we can well afford to hang our hopes for the future on this human trait.

The railroads are not going to have easy sailing when this war is over. Certainly there will be less traffic to handle for awhile—with vigorous competition for every bit of it. Furthermore, the railroads are not going to have fat bankrolls with which to revolutionize and modernize their facilities and ser-

(Continued on page 60)



By

H. STUART HOTCHKISS
*Chairman of the
Cambridge Rubber Company
General Latex & Chemical Corporation*

PROGRESS Reports, issued by the Office of the Rubber Director, and publicity in technical publications and in the press, have presented a good picture of the scope and rapid development of the loosely termed "synthetic rubber industry" under the exigencies of war. For many years, synthetic rubber has been a dream, but its realization was postponed because of economic reasons and the vast expense involved. Now that the emergency exists, the expense is a secondary consideration.

The purpose of this brief article is to consider what synthetic rubber, as a substitute for natural rubber, means in the broad picture of an industry, which, from small beginnings, has grown into one of the major industries of this country. Early shipmasters and merchants trading to the Amazon at the beginning of the last century, often brought home small quantities of rubber largely as a curiosity. They also took some leather boots to Brazil to be dipped in rubber latex for waterproofing, but prior to the discovery of vulcanization by Good-

Synthetic Product Seen Stabilizing Factor in Natural Rubber Prices

year in 1839, there was really no rubber industry at all. Until the days of the automobile, the use of rubber was confined largely to the manufacture of footwear and mechanical goods, and a little later, bicycle tires. It was the rapid evolution of the automobile that created the volume demand.

In 1876, Sir Henry Wickham more or less surreptitiously, took some rubber seed from Brazil to England. These seeds were nurtured at the Kew Gardens for the purpose of being transplanted eventually to the British possessions in the East. After these Hevea shoots had been established in Ceylon and the Malay Peninsula, little importance was attached to them because the demand for rubber was limited. About 1900 the coffee blight hit the Eastern tropics, doing incalculable damage to the many planters who were dependent on the coffee industry. What appeared to be a tragedy proved to be a blessing in disguise. In desperation the Eastern planters turned to rubber as a crop which could be grown there. They bethought themselves of the early experimental planting, and they were able to acquire seed from these young trees, which by then had matured. The Hevea rubber tree requires about six years from the time of planting to come into bearing. During these years of plantation development, the automobile industry was becoming more and more important, and the demand for tires had outstripped the rubber production. As late as 1907, scarcely a thousand tons of rubber was shipped from all the East. The production of natural rubber from Latin America and Africa did not exceed 60,000 tons, and much of this was inferior to the

Hevea. It was most fortunate that Hevea was the variety transplanted to the East.

As a result of supply and demand, the price of rubber soared until it reached its all-time high, \$3.10 a pound in 1912. The great fluctuations in the price of rubber can only be realized by comparing this figure, \$3.10 a pound, with the 2½¢ a pound to which the price dropped during the great depression in the early 30's. Such widely fluctuating prices have led, at times, to huge inventory losses, and over the years have made the rubber industry an unprofitable one for investors. Nearly 80 per cent of the world's rubber goes into tires, and the mortality among tire companies has been particularly high.

The first revolutionary transition was from wild rubber to plantation rubber. As the demand grew, the production of wild rubber remained static with a tendency to decline, and the spectacular increase from a world absorption of 60,000 tons in 1907, to an absorption of 1,084,000 tons in 1940, came entirely from plantation sources. In the early years, virtually 100 per cent of the plantation rubber was produced on so-called European Estates. Then under the stimulus of the British and Dutch governments in their effort to improve native conditions, more and more rubber began to come from small native plantings. By 1940, approximately half of the 1,084,000 tons absorbed was from native sources, with the percentage rising rapidly. It seems inevitable that ultimately the cultivation of rubber in the Middle East will follow the trend of the Copra industry, which, like rubber, started as a European cul-

OR

In 1943 we come to the second great development in the production of rubber, which will prove equally as spectacular and revolutionary as the transition from wild to plantation rubber. This is the substitution of synthetic for the natural product. The same 30,000 tons of rubber which required the large investment and labor force on the plantations, can be produced in a synthetic polymerization plant, constructed in less than a year at a cost of approximately six million dollars, and with a labor force of only about 350 men. At first glance it might appear that synthetic rubber, under these conditions, could be produced at less cost than plantation rubber, but this will probably never be the case because nature provides the raw materials for natural rubber, while in polymerization plants the Butadiene, Styrene and other components must be purchased. It has been demonstrated, however, that synthetic rubber can be produced within an economic range that will enable it to meet competition. Being a tailor-made product, so to

(Continued on page 56)

NOVEMBER NINETEEN FORTY-THREE

South Offers Greatest Economic Future of any Section of the United States

FROM hand grenades to skillets—is the way one Southern manufacturer will jump out of the firing line into the frying pan business when our war plants return to peacetime activities.

That is a sample of reconversion plans already being worked out in the new Southern Merchandise Office recently located at Atlanta by Sears, Roebuck and Company to concentrate on buying in the South what Sears sells in the South—to help give the South a favorable trade balance with Sears.

This company has acted on their belief that the South offers the greatest economic future of any other section of the Nation. Within the past few years they have invested millions of dollars in mail order plants in Atlanta and Memphis. They have established more than a hundred retail stores in the South. They have invested millions of dollars in a stove plant in Tennessee; in a tire factory in Mississippi; and in many other smaller southern manufacturing enterprises. They have earnestly tried to develop their southern sources of supply and have done a great job, as customers, in building up the payrolls of southern manufacturers. But they feel that they can still further expand their purchases in the southern states and help the South reach a new milestone in industrial progress by actively engaging at this time in the study, with industrialists, of the wisest and quickest possible conversion plan for the South's great mass of war-born industrial plants.

By

JERRY JERAN
*Sears, Roebuck & Co.,
Atlanta, Ga.*

While the South already had begun to show imposing strength in industrial expansion before the war, her great wartime gains can equal a century of normal progress if a concentrated effort is made now to plan for the widest possible conversion of her war plants to peacetime goods to meet the great consumer demands we can logically expect in the post-war period. It is Sears' belief that the distributive industries can make a real contribution to that achievement and to the industrial progress of the region by joining planning heads and hands *now* with the manufacturers of war goods in searching for peacetime items that can best be made with war production facilities.

Recently Secretary of Commerce Jesse H. Jones publicly stated that, despite the tremendous wartime expansion of government-owned manufacturing facilities, it should not be necessary for the government to keep its hand in industry after the war is over. Mr. Jones explained that one of America's greatest post-war problems will be what to do with government-owned war production facilities; that we will need to maintain a high level of employment to prevent idleness, suffering and want, but that this does not

necessarily mean that the government must retain the ownership or the operation of the facilities it has built for war production purposes. More recently, one of the senators in Washington said the Nation's post-war policy should be pointed to the restoration of business in the hands of the people and for the quickest revival possible of the system of free enterprise. "Self help for industry," he said, "is better than government help."

Sears is sold on that self help idea and believes that private industry and private initiative must accept this challenge to provide the proper leadership by taking these new war plants and utilizing them in the further upbuilding and expansion of the industrial South. They believe that the retail industry as a whole must give every possible effective aid in finding peacetime uses for the newly constructed war plants and in supporting those plants that were converted from peacetime manufacturing when the war overtook the world.

This is not a new idea at Sears, for the officials of that company have long felt that the distributor should buy in the South what he sells in the South. That thinking goes back a number of years—back to a statement General R. E. Wood, Sears Board Chairman, made in a speech at a dinner tendered in his honor by the Southern Governors' Conference in Atlanta five years ago, when he said: "To put it in everyday terms, manufacturing New England, Pennsylvania, and sections of the North have had the industrial cream and the agricul-

*merchandising
official says
wartime gains
can equal a
century of
normal progress
if concerted
effort is made
on post-war
conversion
to peacetime
consumer needs*

tural South has had the skimmed milk. But a different day already is at hand and the decentralization of industry is progressing, all to the advantage of the Nation, and the industrial payrolls of the South are gaining more rapidly than the average of the Nation."

Ever since that day five years ago, Sears has been making a detailed study of its purchases made versus merchandise sold in each state in the Union. It was found that they sold several times more merchandise in the South than they bought. These facts were discussed at a board meeting—steps were taken to correct what was obviously an unsound economic condition, with the result that now,

five years later, their sales do not quite come up to the dollar volume of merchandise they buy in the South.

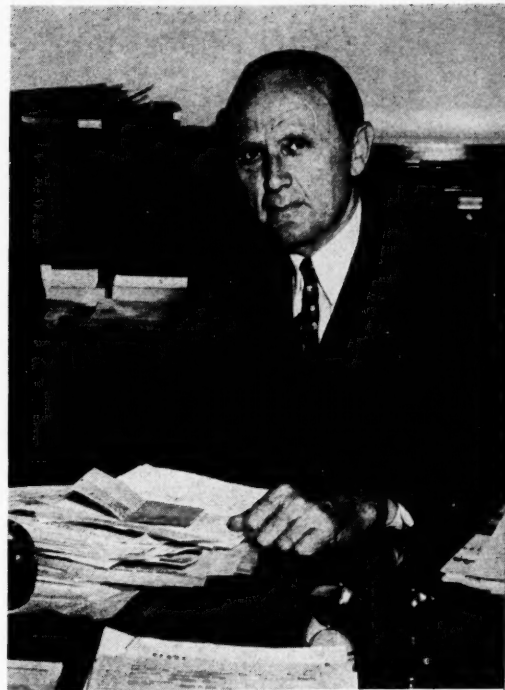
A typical illustration of how this was accomplished is to be seen in the Tire and Rubber Plant that the company established in Natchez three years ago, and further illustrated by the recent establishment of a Southern States General Merchandise Office, charged with the responsibility of furthering the purchase of additional merchandise in the South through greater volume of business done with current sources and through the establishment of new sources.

The South, always rich in basic materials, is the natural territory for wartime development. Enormous plants have mushroomed everywhere, dedicated to the manufacture of implements of war. In villages, cities, hamlets can be heard for the first time the pounding of giant presses. Foundries have been expanded to huge proportions—steel fabrication has doubled, tripled, quadrupled—aluminum plants, magnesium plants in the South have attained heretofore undreamed of heights in production, while cotton, lumber, coal, agriculture, paper, pulp—all have joined in the giant procession to victory.

Yet, in the midst of the war, Sears feels that it is wise to prepare for the peace to come—that reconversion plans should be a part of the war effort, or at least a topic under mature consideration—that the South is on the threshold of its industrial destiny.

Placing reliance on spade work and not oratory, placing reliance on personal contacts in foundries and factories—on the ground, so to speak, company representatives have traveled thousands of miles throughout the thirteen Southern states. Together, with heads of businesses, reconversion plans have been discussed with hundreds of leading industrialists.

With major emphasis on what the manufacturer thought that he could make, detailed plans were laid which gave assurance that the action taken now would resolve itself into a busy Southland later. A manufacturer of cartridge clips will make wire baskets and trash burners—a shell maker becomes a



Above—"Jerry" Jeran, the author, who heads the southern merchandise office recently opened at Atlanta by Sears, Roebuck & Co. to develop closer relations and give more complete support to southern manufacturers. A department store executive of wide experience, Mr. Jeran has been with the Sears, Roebuck organization for fourteen years, occupying various executive positions and until his new appointment was responsible for development and promotion of the firm's soft line merchandise in retail stores.

kitchen utensil manufacturer — a builder of wood barges, a maker of ladders and ironing boards — a steel forming shop, a maker of attic fans—a hand grenade foundry, a maker of iron skillets—gun turrets to steel bath tubs—and so goes the newly industrialized South along on its path to post-war peace and prosperity.

With Sears in a potential position to actively aid in the movement, it is their conviction that proper planning in the reconversion program will, and should, give the South an opportunity to make great headway in locating permanently some of the highly skilled manufacturing enterprises in the region. Outside of ships and war materials, the more highly skilled industries still are most numerous in the North. Now the time has come for the location in the South

(Continued on page 64)

Contracts

ALABAMA

BIRMINGHAM—building—J. F. Holley, Birmingham, low bidder at \$102,819 for alterations and additions to present plant of Rheem Manufacturing Co.

BIRMINGHAM—factory—Norman Wood has contract for factory building for Peerless Broom Co.

GADSDEN—power plant—Rust Engineering Co., Liberty Life Bldg., Birmingham, has contract at \$400,000 for power plant for Goodyear Tire & Rubber Co., Akron, Ohio.

FLORIDA

GOULDS—packing house—Capital Agricultural Corp., Association, has permit for construction of addition to packing house; \$11,000.

MIAMI—additional work—Dade Dry Dock Corp., 777 Biscayne Blvd., Miami, has permit for cable and oil room addition, new addition to store and office building; R. E. Collins, 1270 NW 11th St., Miami, Archt.

MIAMI—radio buildings—Pan American Airways, Inc., Fred J. Gelhans, let contract to Witters Construction Co., Miami, for construction of 2 radio buildings.

GEORGIA

AUGUSTA—expansion—Defense Plant Corporation, increased contract with Lombard Iron Works Co., Augusta, to provide additional equipment at a plant in Georgia; \$33,000.

MARYLAND

BALTIMORE—storage building—Davis Construction Co., 9 W. Chase St., has contract for storage building, 5601-19 Eastern Ave., for Porcelain Enamel Manufacturing Co.; \$14,000.

BALTIMORE—office, etc.—H. J. Dudley, 102 W. Chase St., has contract at \$40,000 for office building and at \$7,000 for retaining wall, 1301 Wilcomco St. for Revere Copper & Brass Co.; brick and concrete; 2-story.

BALTIMORE—barricade—Cogswell Construction Co., 513 Park Ave., has contract for mixing barricade, 6101 Falls Rd. for Catalyst Research Corp.; Killiam, Hopkins & Greeley, Archts.

BALTIMORE—ice plant—Cummins Construction Corp., 803 Cathedral St., has contract for ice plant alteration, 1714-20 Gough St., for American Ice Co.

BALTIMORE—addition—Defense Plant Corp., U. S. Industrial Chemical, Inc., Curtis Bay, erect addition to plant, 5101 Distillery Ave.; steel, frame, brick and conc.; cost \$10,000; owner builds.

BALTIMORE—building—Baltimore Contractors, 711 S. Central Ave., has contract for building, Chart Ave., for Brooklyn Chemical Co.; cinder block; 1-story; cost \$15,000.

BALTIMORE—addition—W. E. Bickerton Construction Co., 101 W. 22nd St., has contract for plant addition and retaining wall, 3801 Boston St. for Standard Oil Co. of New Jersey.

BALTIMORE—addition—Armiger Construction Corp., 2127 Maryland Ave., has contract for addition to meat packing plant, 3800-3900 E. Baltimore St., for William Schluderberg-T. J. Kurdle Co.; brick and concrete block; 3-story and basement; Henschien, Everds & Crombiz, Archts., Chicago, Ill.; \$15,000.

CURTIS BAY—building—Consolidated Engineering Co., 20 E. Franklin St., Baltimore, has contract for fireproof structure, for Defense Plant Corp.; Davison Chemical Co., operators; cost \$30,000.

DUNDALK—boiler house alterations—Cummins Construction Corp., 803 Cathedral St., Baltimore, has contract for alterations to boiler house, for Baltimore Pure Rye Co.; private plans.

HAGERSTOWN—plant addition—Consolidated Engineering Co., Inc., 20 E. Franklin St., Baltimore, has contract for erection of addition to plant of Fairchild Aircraft Division, adjacent to Plant No. 2.

MIDDLE RIVER—fuel testing laboratory, etc.—Glenn L. Martin Co., erect concrete block hydraulic testing laboratory, \$10,000 and fuel testing laboratory, cost \$10,000; owner builds.

Southern Industrial Expansions During October

MISSISSIPPI

HOLLANDALE—equipment—Shelby-Skipwith, Inc., 678 Union, has contract for refrigeration equipment to be installed in the \$45,000 frozen food locker and curing plant promoted by Mrs. Mary R. Castleberry of Rolling Fork.

MISSOURI

ST. LOUIS—factory alterations—Kremer Construction Co., 1416 Chemical Bldg., has contract for factory alteration, 600 S. Newstead St. for Ludlow-Saylor Wire Co., 634 S. Newstead St.; Koerner Engineering Co., Engrs., Syndicate Trust Bldg.

ST. LOUIS—building—John Hill Construction Co., Syndicate Trust Building, has contract for brick and steel 1-story building, 2925 N. Market Street, for Sterling Aluminum Products, Inc.; private plans.

NORTH CAROLINA

ENKA—chemical buildings—Potter & Shackelford, Inc., Allen Building, Greenville, S. C., have been awarded contracts for two extensions to chemical buildings for American Enka Corp.; following have been awarded sub-contracts and material contracts: Ready-mixed concrete, Reed & Abbe, Inc., Asheville, N. C.; brick, Merry Brothers Brick & Tile Co., Augusta, Ga.; reinforcing steel, Southern G. F. Co., 263 Decatur, S. E., Atlanta, Ga.; miscellaneous iron and steel, Dave Steel Co., Roberts St.; roofing and sheet metal work, glass blocks, Pritchard Paint & Glass Co., 77 Patton Ave.; roofing and sheet metal work, W. H. Arthur Co., 225 Patton Ave., all Asheville, N. C.; plumbing and drains, Webb Electric Co., Anderson, S. C.; gypsum roof, Lathrop-Hoge Construction Co., Cincinnati, Ohio; American Enka Corp., also awarded contract to Reed & Abbe, Inc., for sewers and foundations; Merchants Construction Co., 290 Biltmore Avenue, Asheville, for miscellaneous building; other contracts to be let later; estimated cost \$2,500,000.

OKLAHOMA

Gas pipe line—Cities Service Transportation & Chemical Co., Masonic Building, P. O. Box 550, Ponca City, Okla., has under construction a 26-in. natural gas pipeline from a point in the Hugoton field north of Guymon to Blackwell, distance of 231 miles; there will be 3 river crossings to construct, Cimarron, Salt Fork and Medicine Lodge; each of these river crossings will be made with 20-in. pipelines; the 26-in. line will be solid welded; factory bends will be used for making all angular deflections required by the topography of the country; pipe will be protected against corrosion with hot coat of coal tar enamel; project also includes the construction of an 8,000 h.p. compressor station north of Guymon, together with a dehydration plant; gathering system will consist of 60 miles of pipeline in 4, 8, 10, 16 and 20-in. sizes; about 160 miles of single circuit telephone line will be constructed; the 26-in. main line and river crossings will be

(Continued on page 50)

Proposed

ALABAMA

LANETT—freezing unit—Valley Freezing Corp., has plans by Robert & Co., Bona Allen Bldg., Atlanta, Ga., for freezing plant

FLORIDA

MIAMI—building addition—Tycoon Tackle Co., Inc., Frank O'Brien, Jr., President, 320 S. W. 22nd Ave., Miami, plans addition to manufacturing building; William J. Green, 226 N. E. 22nd St., Miami, Archt.

GEORGIA

SAVANNAH—plant—Bradley Plywood Co., contemplates erection of plant; conc. block, struc. steel; 1-story; 136x630 ft.; comp. roof.

STATESBORO—locker plant—James P. Collins build freeze locker and meat curing plant.

KENTUCKY

RICHMOND—ordnance depot—Firestone Tire & Rubber Co., organized new subsidiary, Blue Grass Ordnance, Inc., to take over operations of Blue Grass Ordnance Depot; covers an area of 14,000 acres, 110 miles of railroad, complete utilities and maintenance shop, filtration and sewage disposal plant fire department and dispensary.

LOUISIANA

NEW ORLEANS—dry dock—Pendleton Shipyards Co., Inc., Industrial Canal, plans bulkheads and facilities for installation of a 1,000 ton drydock; contract for test borings for piles let to Raymond Concrete Pile Co.

NEW ORLEANS—air lines—Seaboard Airways, Inc., Alvin P. Adams, President, filed application with Civil Aeronautics Board, Washington, D. C., for authority to operate cargo and passenger planes from Boston to Miami and New Orleans.

SHREVEPORT—pipe line—Standard Oil Co. of Louisiana, Pipe Line Department, Shreveport, has applied for a War Department permit to authorize installation and maintenance of a 6-inch pipe line approximately 15 miles southwesterly from Plaquemine.

SOUTH BEND—dredging—Texas Company, New Orleans, applied for a War Department permit to dredge channel and install structures for drilling an exploratory oil well.

TERREBONNE PARISH—gas lines—Federal Power Commission, Washington, D. C., authorized United Gas Pipe Line Co., Shreveport, La., to construct and operate additional facilities in Terrebonne Parish, to meet increased demands for natural gas in the Mobile and New Orleans Gulf coast areas; also permitted to remove some unused pipeline facilities, needed in the other parts of the concern's system, from the Washkom area in Harrison County, Texas, and Caddo Parish, La.

MISSISSIPPI

BELZONI—plant—W. White & Co., plans frozen food locker plant; \$20,000.

GULFPORT—warehouse—Plans and specifications soon ready for construction of bonded warehouse northeast area of Gulfport Ship Harbor for Gulfport Commission; Shourds, Mogabgab & Bean, Archts., Gulfport and 612 Audubon Bldg., New Orleans, La.

HAZLEHURST—compress—Mississippi Compress Co. plans rebuilding burned cotton warehouse.

MISSOURI

KANSAS CITY—addition—Union Wire Rope Corp., 2100 Manchester Ave., erecting addition; 60x170 ft.; 1-story; steel columns and trusses; conc. block with slab roof; cost \$30,000.

NORTH KANSAS CITY—paper factory—North Kansas City Development Co., will erect a plant at a cost of \$150,000, for the making of heavy multi-wall paper bags for shipments of foods, building materials and

(Continued on page 50)

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FOR



THE MISSISSIPPI

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100 in 1930. The company's
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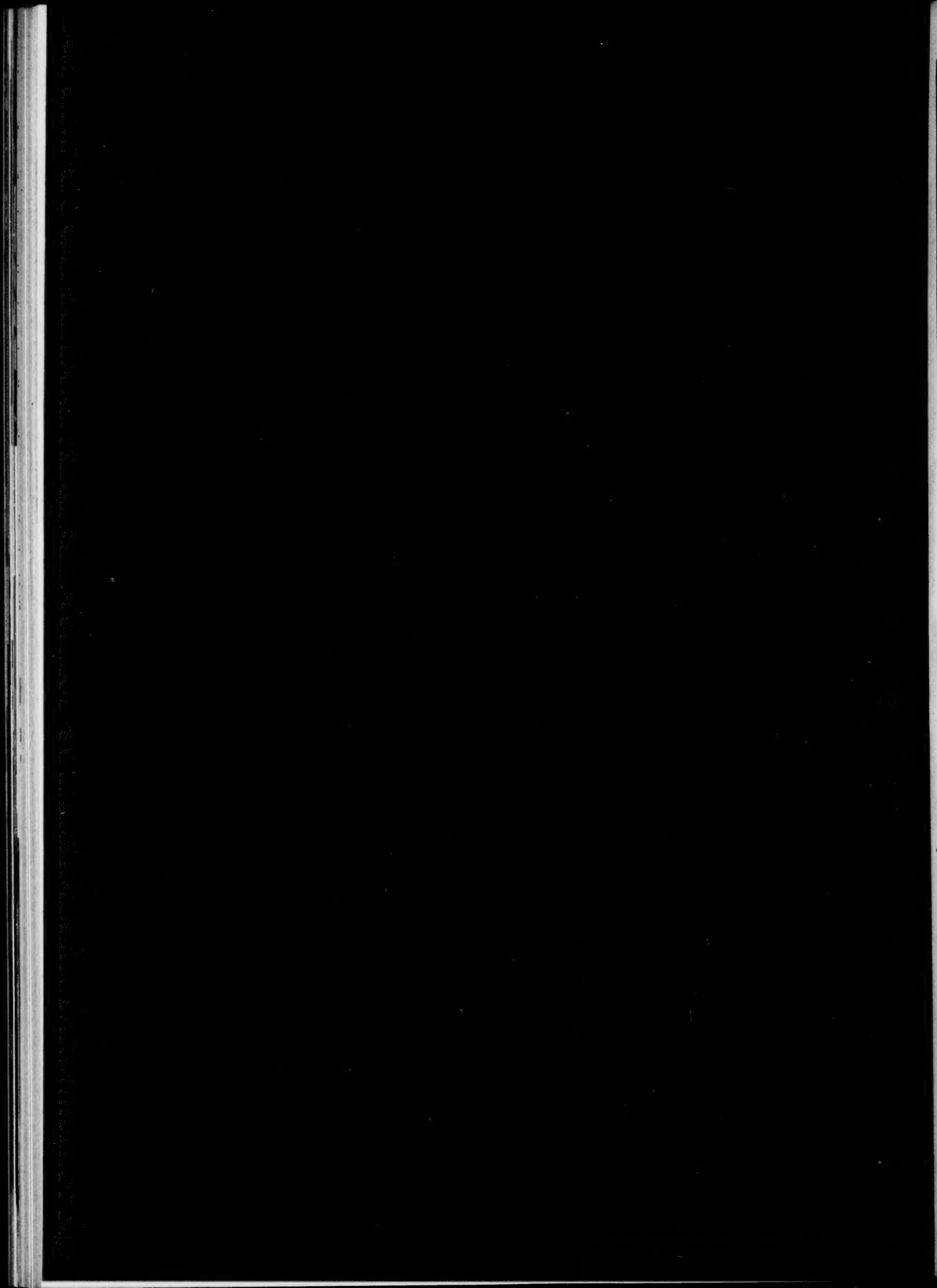
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EQUITABLE

Life Insurance Corporation

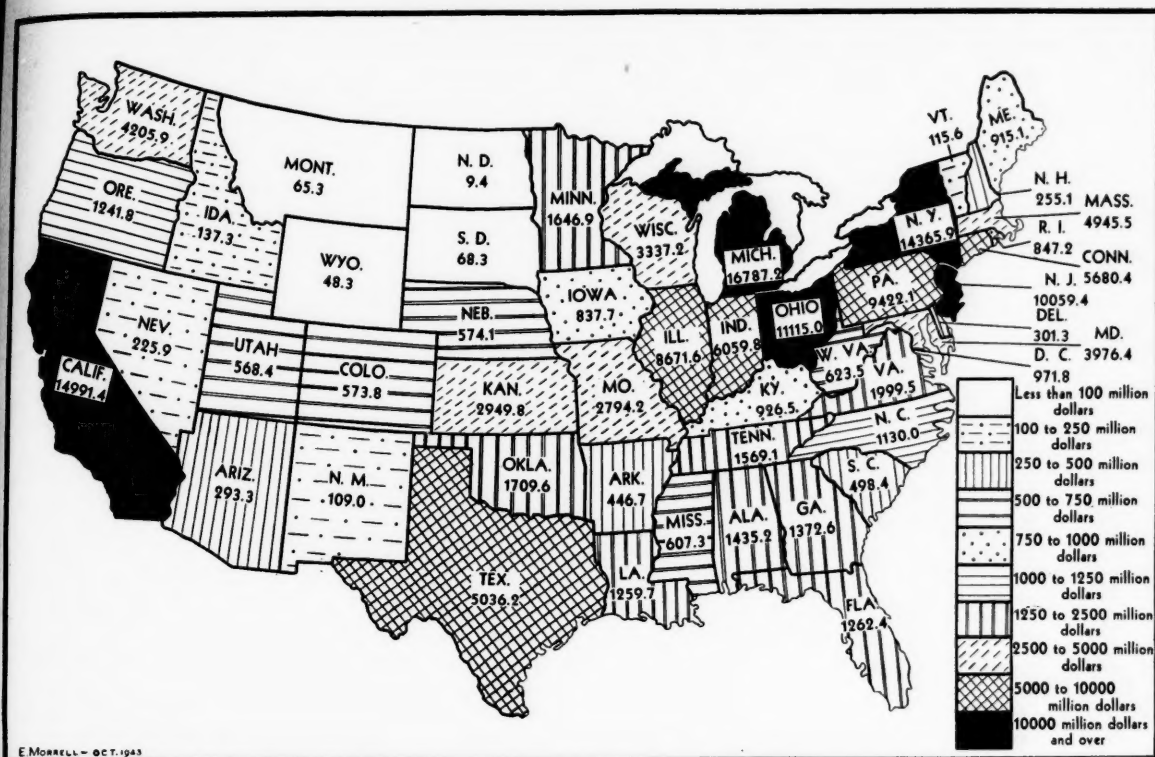
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Southern War Contracts and Allocations

Distribution of war supply and facility contracts, as compiled by the War Production Board, shows that the South's share in the \$165,157,360,000 for the entire country is \$27,619,042,000, or a little over sixteen per cent of the total. Increases were recorded in the figures for all of the sixteen states except Arkansas and Mississippi. A precipitous rise was indicated for the District of Columbia, the increase being included in the Reconstruction Finance Corporation figure, although no announcement was made about the nature of the commit-

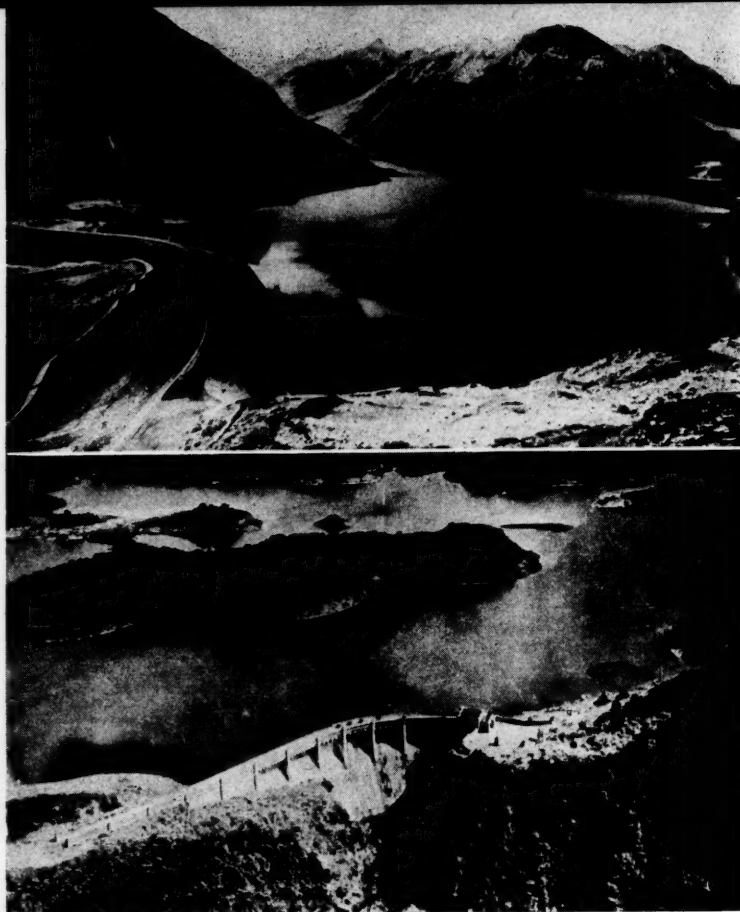
ment. The figure for the South for Army, Navy, Maritime Commission, Treasury and foreign purchasing is \$25,512,993,000; for the entire country, \$159,877,602,000. Texas leads the sixteen states of the South. War supply and facility contracts and allotments to the Lone Star State total \$5,036,209,000, while those for Maryland rank second at \$3,976,418,000. In addition to the amounts shown, approximately \$8,199,000,000 has been issued in the form of manufacturing project orders to Army

and Navy establishments. Aircraft includes contracts for airframes, engines, propellers and other parts, but not armaments, instruments and communication equipment. Ships include construction of new vessels, purchase of used ships, conversion, recommissioning and repair, marine engines and propulsion equipment. Contracts are assigned to the States on the basis of location of producing plants. Where the work site is not known, they are included in the unassigned group.

Major War Supply and Facility Contracts and Allocations, June, 1940, Through August, 1943
(Thousands of Dollars)

	Army, Navy and Maritime Commission			Facilities		Dept. of Commerce C.A.A.	National Housing Agency F.P.H.A.	Federal Works Agency	N.Y.A. and Office of Education	Dept. of Commerce R.F.C.	Total
	Aircraft	Supply Contracts Ships	Miscell.	Industrial	Non-Industrial						
Alabama	1,779	378,676	425,823	385,825	153,239	2,214	48,101	21,172	10,380	8,037	1,435,246
Arkansas			60,284	233,153	123,458	1,947	17,283	4,655	5,215	690	446,685
Dist. of Col.	70	783	8,430	28,989	72,473	150	41,318	16,602	1,843	801,167	971,825
Florida	1,923	549,191	66,437	58,125	485,980	12,599	36,944	34,932	8,511	7,769	1,262,411
Georgia	345,521	210,225	379,747	101,864	262,566	5,101	39,194	14,274	10,058	4,044	1,372,594
Kentucky	204,430	122	279,653	215,444	149,533	3,247	11,901	12,535	8,746	40,846	926,457
Louisiana	167,672	319,899	114,456	336,076	243,999	2,199	9,032	15,729	7,594	42,997	1,259,653
Maryland	1,629,529	509,182	1,280,624	205,635	231,685	1,929	76,867	17,326	5,249	18,892	3,976,418
Mississippi	712	255,444	73,083	46,734	191,402	426	19,578	11,520	8,056	381	607,336
Missouri	657,764	68,687	1,359,026	506,596	149,628	3,267	16,804	16,758	8,804	6,826	2,794,160
North Carolina ..	20,432	231,243	431,885	44,867	336,784	4,011	32,623	18,487	8,729	915	1,129,976
Oklahoma	1,094,277	1,588	130,644	213,347	237,352	3,485	8,846	10,053	9,398	607	1,709,597
South Carolina ..		37,734	215,456	42,727	142,127	4,276	25,340	25,858	4,753	174	498,445
Tennessee	498,891	15,983	557,700	264,697	201,776	120	10,347	9,456	8,302	1,802	1,569,074
Texas	1,337,717	1,171,082	663,558	865,576	826,991	10,806	84,205	47,728	21,264	7,282	5,036,209
Virginia	2,432	\$14,200	230,271	209,403	543,349	1,511	150,218	38,046	7,530	2,504	1,999,464
West Virginia ...		35,927	281,303	264,820	15,278	2,090	8,220	5,908	9,400	447	623,492
South	5,963,149	4,599,966	6,558,380	4,023,878	4,367,620	59,378	635,821	321,129	143,841	945,380	27,619,042
U. S.	42,202,209	21,194,250	68,898,784	15,554,646	12,027,713	137,922	1,906,746	785,629	449,521	1,909,940	165,157,360

"Aircraft" includes contracts for airframes; airplane engines, propellers, and other parts; and certain related equipment such as parachutes and aircraft pontoons, armaments, instruments, and communication equipment are excluded. "Ships" include contracts for the construction of new vessels of all kinds; the purchase of used ships; and ship conversion, recommissioning, and repair. Propulsion machinery (when separately contracted for), armor, armament, navigation and radio equipment, parts and materials are excluded.



Left—Pomococha Dam, a Peruvian hydroelectric project, is shown in the top picture. The dam on the Rio das Pedras, at Sao Paulo, Brazil, is pictured in the lower view. Nearly all Brazilian hydroelectric power is concentrated in the industrial states of Sao Paulo and Rio de Janeiro. Peru, with the aid of United States funds through the Export-Import Bank, is building a big hydroelectric development on the Santa River, which flows into the Pacific north of Chimbote Bay. Work was started under a former Tennessee Valley Authority engineer.

Electric Development Sought by South American Countries

*power seen
as key to
industrial
future*

By

CHARLES A. HOWARD
*Technical Director
Inter-American Development
Commission*

AN opportunity for engineers and manufacturers in the United States to participate in the large water power development programs of South American republics is indicated by the latter's desire for foreign equipment and foreign technical assistance.

The continent of South America, while exceptionally well endowed with mineral resources of great value, has extremely limited commercial deposits of coal. Most of the deposits which do exist are either insufficient in quantity, poor in quality or badly located with reference to consuming centers. The need for importing large quantities of fuel is a heavy burden on the economies and finances of most South American countries.

Wartime restrictions on ocean shipping and the resulting shortage of imported fuel have caused many South American republics to take stock of their resources of hydroelectric power and of the possibilities for future development.

Many of these republics have large unexploited sources of electric power, especially Brazil and the mountain republics along the Andes. Chile, which is 2,600 miles long, seldom more than 100 miles wide and with mountains exceeding 20,000 feet in height, is an outstanding example of the Andean republics.

Both Chile and Uruguay have nationalized the future production of electric power within their borders and have programs for the complete electrification of their public services, industries and railroads. While Uruguay is not a mountain republic, its electrification program is one of the most advanced in South America because of long efforts to be free from the necessity of importing coal and oil for fuel.

Uruguay is fortunate in having a large water-power site located right in the middle of the republic and only 150 miles from the city of Montevideo. Work on this 3,800-foot dam on the Rio Negro to impound the largest artificial lake in South America was begun in 1937. But, as the original European contractor could not finish the work on account of the war, including the installation of four generating units to develop a total of 128,000 kilowatts, the job was turned over to a United States organization.

One 32,000-kilowatt turbine generator will soon be installed at the Rio Negro dam and a transmission line to the city of Montevideo erected, thereby relieving that city of

some of its dependence on imported fuels.

The total cost of the Rio Negro project, including four generators, the dam and transmission lines, is reported to be approximately \$35,000,000.

Several other water-power and irrigation projects are included in the long-range plans of Uruguay. These are as follows:

A dam on the Queguay River just north of the city of Paysandu to develop 8,000 kilowatts.

A dam on the Arroyo Cunapiru in the north of the republic to develop 10,000 kilowatts and to serve the cities of Rivera and Tacuarembó.

A dam on the Cebollati River in the eastern regions to develop 11,000 kilowatts and to serve Maldonado, Treinta y Tres and other communities.

While the average rainfall of Uruguay is 50 inches a year, this fluctuates between 25 and 72 inches and there are frequent and sometimes serious periods of drought when it may not rain for months at a time. Uruguay is just now recovering from one of its worst droughts in 40 years.

Chile's principal centers of potential hydroelectric energy, according to the plans of the Chilean Development Corporation, are located in the Aconcagua region to the north of Santiago, in the Rancagua region along the Rapel River just to the south of the capital and in the Orsorno region which includes the chain of lakes in the south.

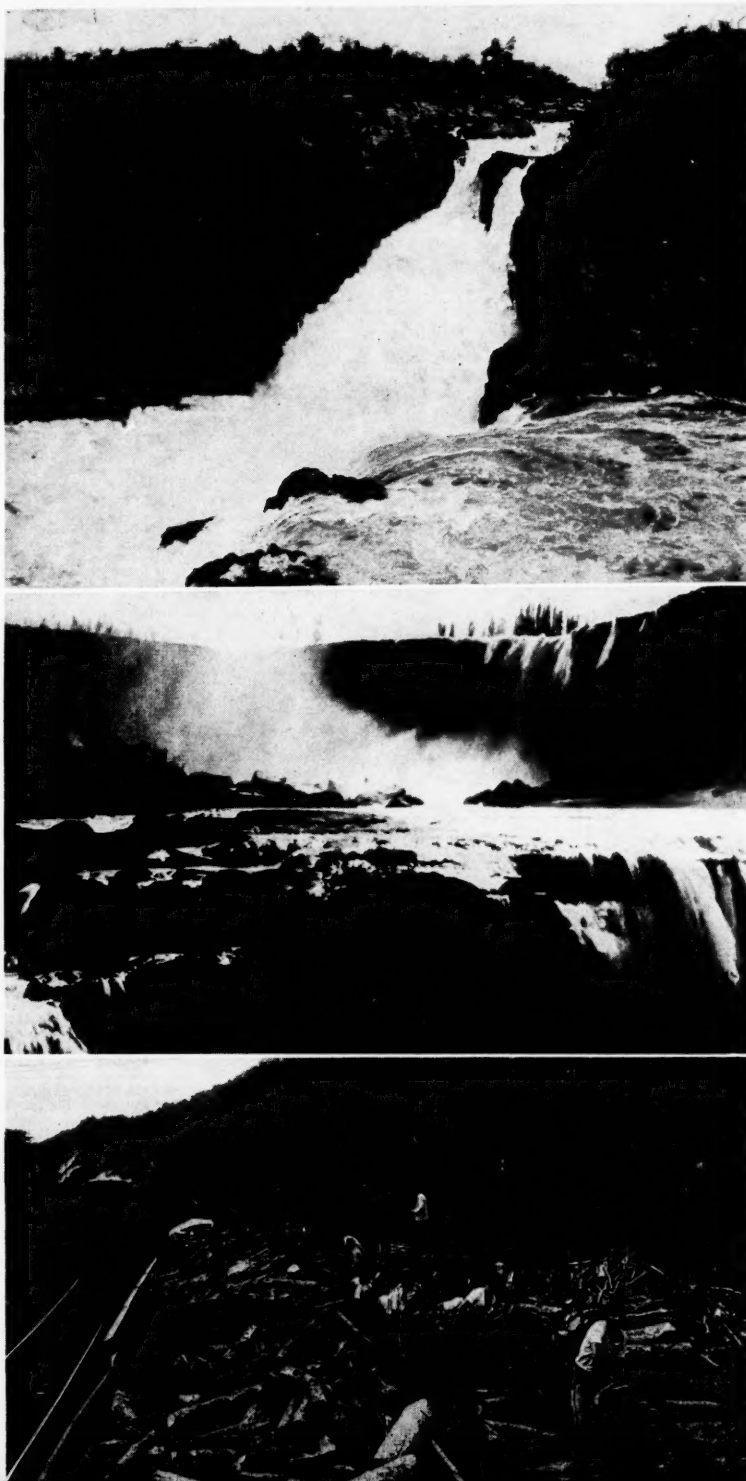
While the rivers of Chile are not

large, they plunge down from great heights to the sea and offer sites for high head installations. Some of the lakes are well located for power development and in several of the southern provinces the rainfall is in excess of 100 inches per year. The lakes, waterfalls and rapids of southern Chile provide many power locations for chemical plants, smelters and other large

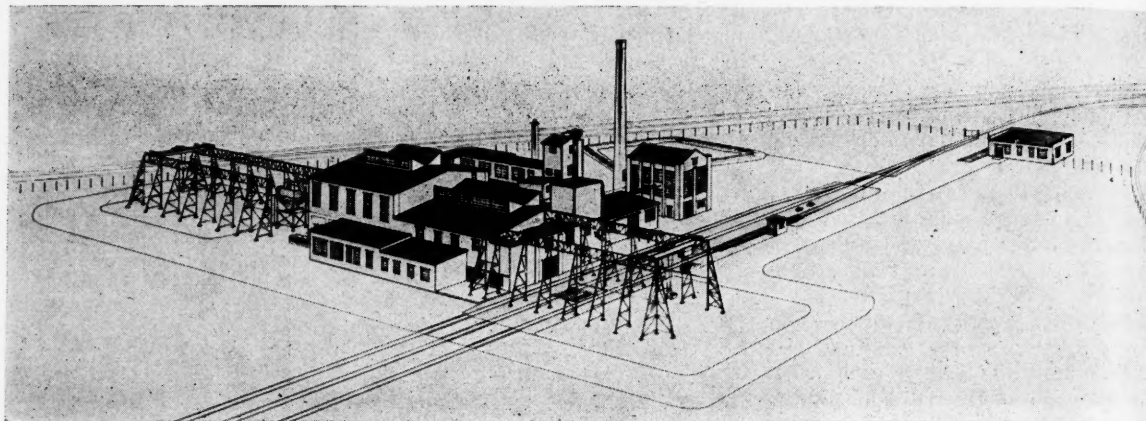
users of cheap power. Sites for hydroelectric plants have been surveyed at Tocopilla, Copiapo, La Serena, Coquimbo, Sausal, Orall, Lontue, Maule, Leja, Pilmaeque, and at El Volcan.

The Aconeagua system will be used largely in the production of Portland cement. This plant, together with other power stations,

(Continued on page 50)



Right—The top view is of a potential power site in Brazil. The Paulo Afonso Cataracts of the Sao Francisco River drop 265 feet as they tumble seaward at the rate of 16,000 cubic feet per second. Laja Falls, pictured in the middle view, have a drop of 130 feet on the Laja River in Southern Chile. The site is about one hundred miles from Concepcion, an important industrial center and the third city of Chile. The bottom picture shows why Brazil wants hydroelectric development. Coal is scarce in the country of the Amazon, hence, wood must be used for railroad operation. Wood for engine fuel is shown being taken on along the Sao Paulo Railway.



Above—H. K. Ferguson Co., Inc., industrial engineers and builders of Cleveland and New York, are now constructing the detinning plant shown in the perspective above. When completed in 1944, the plant will be one of the Nation's largest for detinning cans and will provide facilities for handling both prepared and unprepared cans. The latter are those which have not previously been washed and flattened out by the user. A. C. Davis is superintendent on the job in charge of construction for the Ferguson organization. Contracts awarded in connection with project include: Electrical, Broadway Electrical Construction division of the Broadway Maintenance Corp., of New York and Atlanta; underground piping contract, R. Brinskelle, Birmingham, Ala.; erection of stack, setting boilers and boiler brickwork, Rust Engineering Co., Birmingham.

Southern Construction Contracts in October Rise to \$90,302,000

By

SAMUEL A. LAUVER
News Editor

SOUTHERN construction made a seventeen per cent gain in October, the rise to \$90,302,000 as compared with the preceding month being mainly due to increased activity in the industrial, public engineering and highway fields.

The construction total so far this year amounts to \$1,275,488,000. While the figure is a drop from comparable periods

of the last two war-inflated years, it is twenty per cent ahead of awards made during the first ten months of 1940, the year of preparatory activity from which the war-time construction program mushroomed.

Comparisons between 1943 and 1942 figures for the first ten months of the two years show private building in 1943 to total \$64,436,000 and in 1942, \$110,158,000; industrial construction at \$252,969,000 in the current year and \$997,720,000 last year.

Public building stands at \$567,636,000, as compared with the \$1,865,917,000 of the first ten months of 1942. The 1943 first ten months total for engineering is \$274,550,000; the comparable 1942 figure, \$392,147,000. Road awards for the two periods are \$115,897,000 and \$147,104,000, respectively.

Industrial construction, in the first ten months of this year has averaged nearly \$21,000,000 monthly with October's \$4,024,000 showing a sixty-one per cent increase over September.

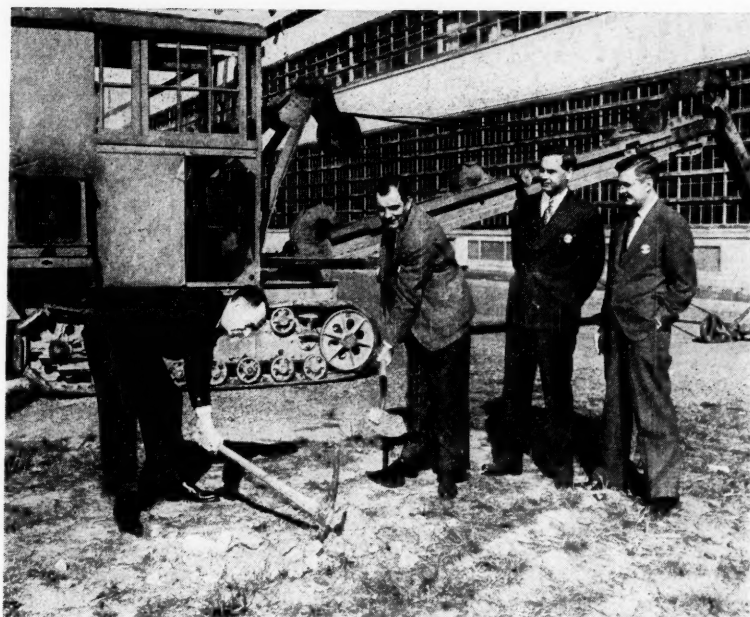
Engineering construction during October rose to \$18,497,000. This was a twenty-six per cent increase over the September figure of \$14,601,000. Army airfield construction continued and was responsible for a large part of the advance.

Highway and bridge construction almost doubled. The figure for October was \$12,222,000. The 1943 monthly average for Southern highway construction approximates \$9,658,000. Much of the work is being done on war roads, as State High-

South's Construction By Types

	October, 1943 Contracts Awarded	October, 1943 Contracts to be Awarded	Contracts Awarded First Ten Months 1943	Contracts Awarded First Ten Months 1942
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)		\$937,000	\$1,312,000	\$4,354,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	\$105,000	1,847,000	4,714,000
Residential (Apartments, Hotels, Dwellings)	8,759,000	2,212,000	61,139,000	99,972,000
Office	138,000	1,118,000
	\$9,004,000	\$3,149,000	\$24,436,000	\$110,158,000
INDUSTRIAL	\$14,024,000	\$66,904,000	\$252,969,000	\$997,720,000
PUBLIC BUILDING				
City, County, State, Federal	\$19,559,000	\$19,468,000	\$373,056,000	\$1,631,193,000
Housing	14,962,000	23,430,000	180,229,000	203,116,000
Schools	2,034,000	2,689,000	14,351,000	31,608,000
	\$36,555,000	\$44,635,000	\$567,636,000	\$1,865,917,000
ENGINEERING				
Dams, Drainage, Earthwork, Air- ports	\$16,519,000	\$16,131,000	\$237,893,000	\$310,126,000
Federal, County, Municipal Elec- tric	84,000	260,000	5,170,000	17,912,000
Sewers and Waterworks	1,894,000	12,385,000	31,487,000	64,100,000
	\$18,497,000	\$28,776,000	\$274,550,000	\$392,147,000
ROADS, STREETS AND BRIDGES	\$12,222,000	\$10,129,000	\$115,897,000	\$147,104,000
TOTAL	\$90,302,000	\$153,593,000	\$1,275,488,000	\$3,513,046,000

*engineering,
industrial and
housing strong,
drop recorded
for federal
building work*



Above—Fairchild Aircraft officials last month broke ground for a new plant addition, as forces of Consolidated Engineering Co., Baltimore contractor, stood ready to proceed on new construction that will result in production of the big C-82 type plane. The picture shows A. F. Flood swinging the pick, and R. S. Boutelle, general manager, with the shovel. A. J. Thieblot and William Hamby are superintending. Albert Kahn Associated Architects and Engineers, Inc., of Detroit, are the architects and engineers. The addition will house a pilot line for producing the new C-82 and upon completion of the building, changes will be made including an addition to the existing cafeteria.

way authorities view the systems under their supervision with increasing apprehension due to labor and material shortages and Federal restrictions.

Private building showed an increase. This type of building was twelve per cent ahead of the total for September. Practically all of the \$9,004,000 total for October was made up of residential construction.

Public building with its \$36,555,000 aggregate for the sixteen states of the South, dropped about six per cent, although it retained its first place among the various categories of construction as the largest single contributor to the month's total.

The decrease was due to a let-up in awards for military building. Public housing, which is included in statistics for public building, rose. The October public housing total was \$14,962,000; that for September, \$12,687,000.

Federal building in October totaled \$19,559,000, as compared with the \$25,171,000 for the preceding month. School awards rose above September's \$1,215,000 to \$2,034,000.

While it may not be that civilian construction will counter-balance declining public construction, Oscar B. Coblenz, president of the Associated General Contractors of America has recommended it for communities where labor is available and materials not needed for military purposes are obtainable.

The War Production Board, however, last month issued a sharply worded statement in which it said "it shall be the continued policy of the War Production Board to restrict construction of new facilities and to reduce facilities under construction to a minimum necessary for the war program and for essential civilian needs."

Government officials asserted that the statement was to "put to an end reports that restrictions on construction were to be relaxed. Confirming the decree on wartime construction issued in May, 1942, the statement pointed out that the "Board

will in each case seek a minimum consumption of materials and manpower, together with maximum utilization of existing facilities and equipment."

Wartime army and navy construction programs on continental United States are approaching their conclusion. Figures for the last few months indicate the immediate future in store for the domestic construction industry. War plant construction is also ebbing, although the authorities from time to time find new facilities essential to meet changing conditions.

The War Department last month stated that ninety per cent of the nearly 15,000 separate projects undertaken at a cost of \$11,000,000,000 since 1940 are in use as the war facilities construction program nears an end. Previously, the Navy had announced that more than four-fifths of the naval shore construction program had been completed.

South's Construction By States

	October, 1943		Contracts	Contracts
	Contracts	Contracts	Awarded	Awarded
	Awarded	to be	First Ten	First Ten
		Awarded	Months 1943	Months 1942
Alabama	\$1,622,000	\$2,418,000	\$45,313,000	\$152,243,000
Arkansas	1,704,000	735,000	32,100,000	92,237,000
Dist. of Col.	2,229,000	2,315,000	14,659,000	63,498,000
Florida	15,855,000	6,683,000	169,628,000	270,234,000
Georgia	2,479,000	6,654,000	82,613,000	174,222,000
Kentucky	902,000	1,207,000	31,370,000	103,754,000
Louisiana	3,563,000	6,028,000	70,541,000	215,795,000
Maryland	5,722,000	4,478,000	88,912,000	205,548,000
Mississippi	1,752,000	863,000	34,058,000	179,060,000
Missouri	569,000	12,272,000	20,294,000	180,551,000
N. Carolina	2,798,000	3,501,000	53,270,000	168,331,000
Oklahoma	16,509,000	12,216,000	101,946,000	177,176,000
S. Carolina	1,250,000	1,379,000	46,298,000	89,321,000
Tennessee	1,684,000	3,883,000	88,044,000	272,014,000
Texas	24,296,000	66,286,000	315,735,000	887,532,000
Virginia	6,964,000	19,959,000	70,867,000	244,282,000
W. Virginia	404,000	2,516,000	9,840,000	37,298,000
TOTAL	\$90,302,000	\$153,593,000	\$1,273,488,000	\$3,513,046,000

Fluorescent Lamp Market Predicted Big After War

By

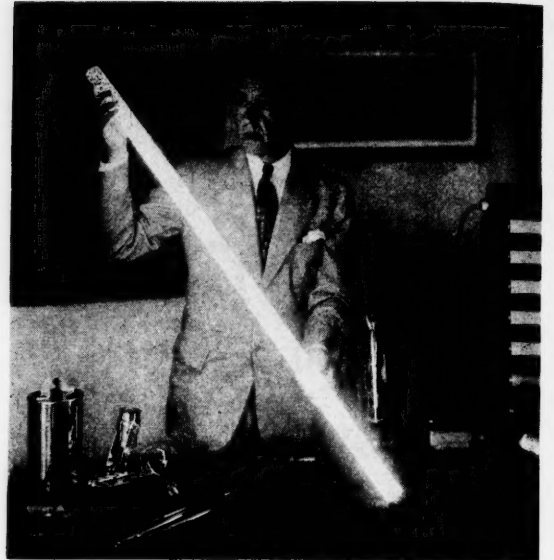
S. G. HIBBEN

Director of Applied Lighting
Westinghouse Lamp Division
Bloomfield, N. J.

IN the five years of its history, the fluorescent lamp has grown more rapidly than any other illuminant, starting at its commercial birthday at the time of the New York World's Fair and increasing to an annual demand in 1942 of some 32 million lamps. The growth has

been more spectacular even than might be gathered from the quantities, because the field of application has been as yet generally limited to industrial plants, offices and stores. In addition there has been a remarkable growth in the number of new fluorescent fixtures or new sockets installed. Because the life of the fluorescent lamp is considerably longer than that of the average tungsten filament lamp, the renewals per socket have been less and so the earlier recorded growth has not been occasioned overly much by replacements or

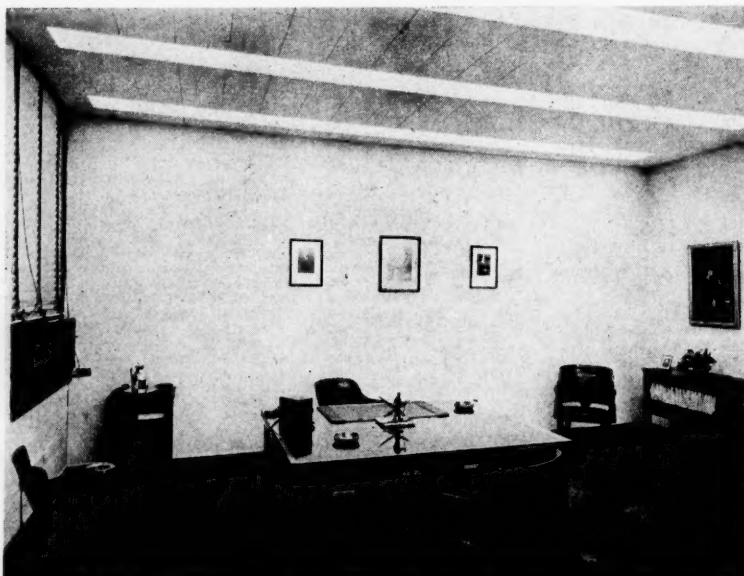
Above—S. G. Hibben, the author, holding a four-foot, 40-watt fluorescent lamp. On the table are a few of the specialized lamps developed by Westinghouse.



burnouts,—rather by new installations. However, in recent months the curtailment of new installations has shifted the proportion so that today perhaps 75 percent of the sales represents lamps for renewal.

Depending upon the availability of critical materials, chiefly tungsten wire, the fluorescent lamp production in the United States in 1943 may roughly be estimated as closely approaching 40 million units. This should take care of the war industries and of the existing commercial installations but does not suggest any extension of fixtures except where strictly necessary in the direct war effort. The limited availability of ballasts or controls is a very major brake on any extension of installations.

In spite of its growth and popularity, the number of fluorescent lamps is only about 5 per cent of the number of tungsten filament lamps consumed in the United States annually. And until the residential market—which was represented roughly 30 per cent of

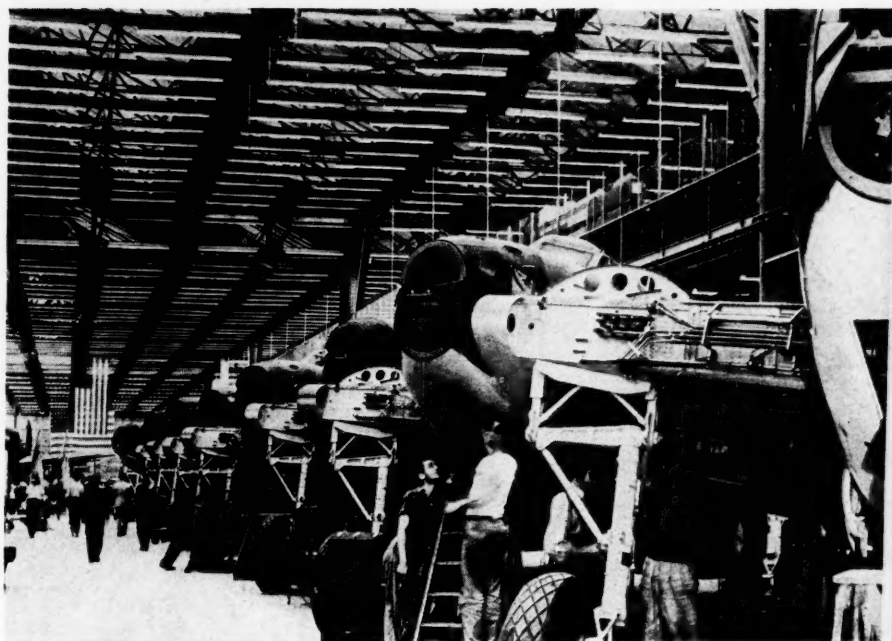


Left—An office illuminated with fluorescent lamps recessed in a sound-proofed ceiling. The light is diffused by transverse louvers, with an intensity of about 35 footcandles at the working level.

lamp consumption—is developed, the fluorescent lamp cannot truthfully be said to have even partially supplanted the filament lamps. In fact it is not presumed to do so. Fluorescent illuminants are rather to be considered as supplemental to,—or additive to,—the filament lamps in the home. At best, the change-over in old homes would seem to be a relatively slow process.

Tomorrow's lighting will probably grow along the lines of high intensity mercury lamps in the large industrials (because these produce light more economically even than do some fluorescent lamps) while in the commercial stores and shops the fluorescent lamp seems to be the only illuminant that will be generally acceptable in the immediate post war period. It may take some time to justify home lighting with fluorescent units because these perform best when they are not turned on and off frequently; they must be carefully installed in order to avoid radio interference; and there is much yet to be done in developing one or more additional colors in order to make the line flexible enough to meet the established habits of home lighting. The bulky size is considered by some to be a detriment,—but recall that there are "baby" sizes of fluorescent bulbs that at the moment are used mostly in military fields but later can be adapted to residences, or to local lighting, while new materials for luminaires and new architectural concepts will make a virtue of the line or tubular shapes. Curved and coiled shapes are being studied, but not planned for early sale. Economics of special shapes is very doubtful.

Unquestionably the fixture manufacturers will find a good market in many of the 26 million American homes that badly need lighting improvements. Five pairs of fluorescent sockets for each of the estimated one million new residences built annually seems conservative. Jointly the architects and contractors will find that the fluorescent lamp, because of its shape and size, calls for new types of housing and concealment so that the postwar interest in fluorescent home lighting will involve structural materials and pre-planning rather than merely the attachment



Above—"MacArthur Boulevard," an assembly aisle in a large western aircraft plant, is lighted by rows of eight-foot long fixtures equipped with 40-watt fluorescent lamps. Mounted nearly 35 feet above the floor, this installation provides 40 foot-candle light for the workers below.

of stock fixtures. This is healthy. This means pre-planning for lighting. This replaces the chandelier of yesterday by fitted built-in lighting for tomorrow.

Incited chiefly by the home lighting market, it will be quite likely that we shall find varieties of smaller wattage fluorescent lamps, both for ornament and for small local lighting jobs such as house numbers, telephone lights, closets, luminous clock faces, small wall brackets and table portables, local lighting over the range or the sink, etc. We may see fluorescent tubes formed into circles or curves for some few limited uses, but it is not probable that there will be much demand nor much wisdom in immediately producing larger wattages of fluorescent tubes according to the present knowledge of the art. One consideration is that we should move away from glare,—not towards it!

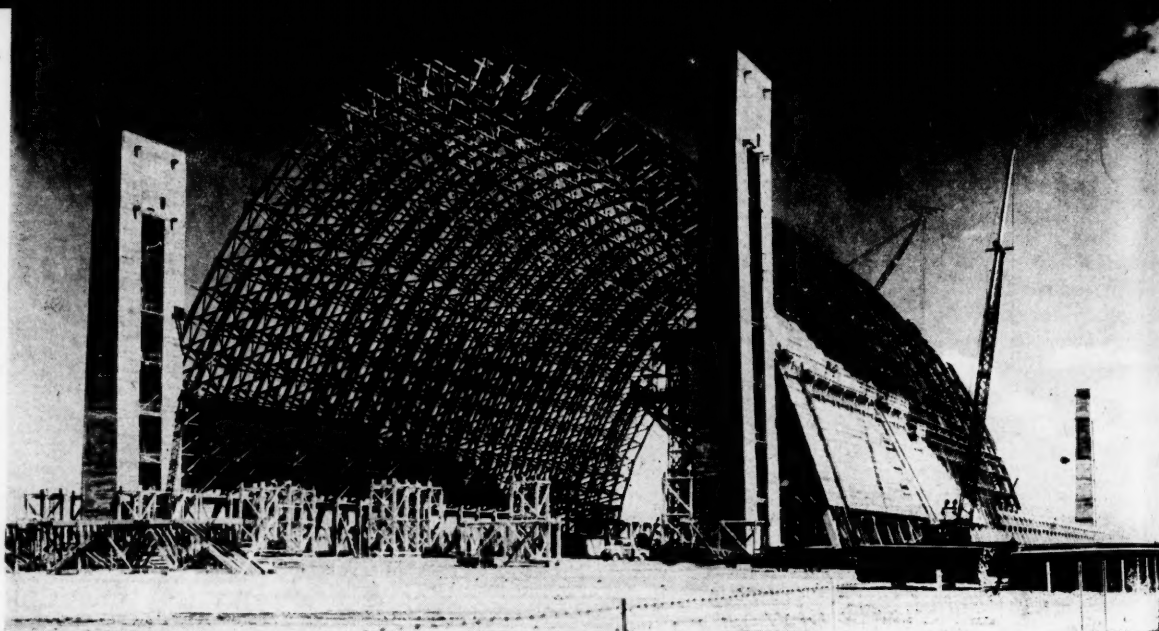
For the tailor-made or individually fitted shapes it seems probable that the high voltage cold cathode or sign tubing will be able to take care of the specialty fields

while the more efficient hot cathode straight tubing will fill the other needs.

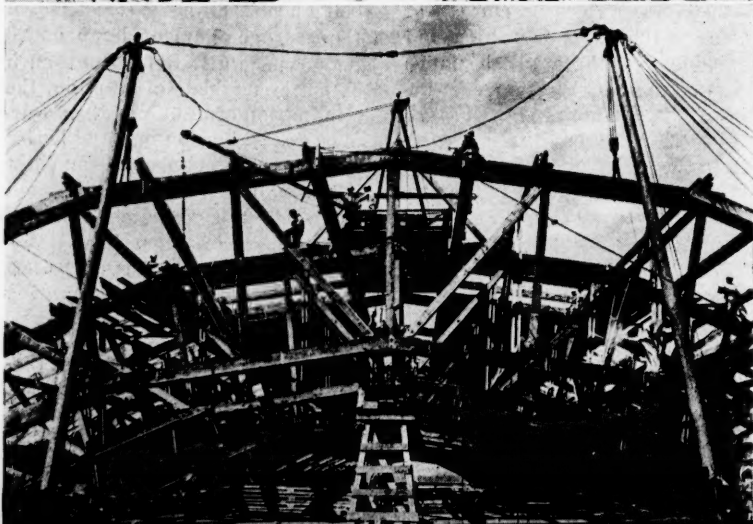
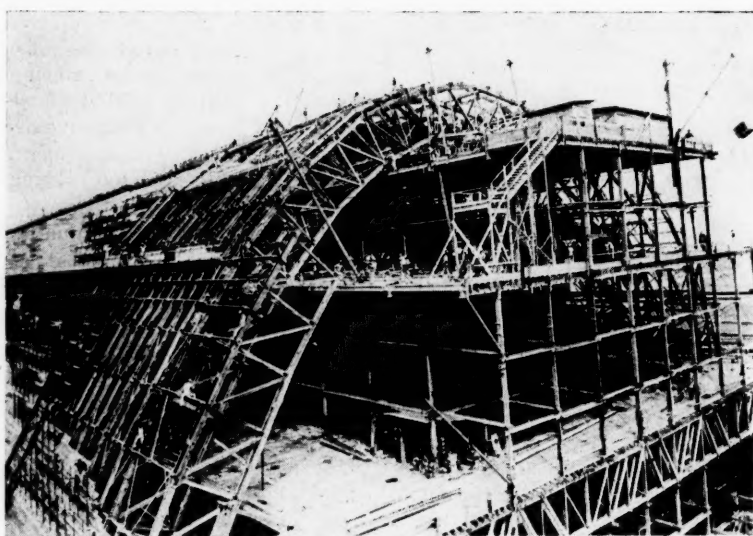
There is little immediate prospect of fluorescent lamps entering the street lighting field, because economy of power is not so important as economy of investment. Nevertheless this field, too, is being studied.

The opportunities for quality improvement are not so great because already there has been expended on the fluorescent lamp a tremendous amount of research and experimentation. True, a decade might bring about a doubling of the fluorescent lamp efficiency now it seems more reasonable to estimate the postwar ($X \div 5$ years) lamp as a unit producing some 60 lumens per watt,—not so bad when recalling the efficiency of the average filament lamp as 20 lumens per watt. Refinements such as better methods of starting, the elimination of blinking, disappearance of end blackening, and better lumen maintenance throughout life are bound to continue and can readily be foreseen. Radical inventions or sudden jumps cannot be predicted and must be left to the imagination. Discounting the latter possibility, the fluorescent lamp still seems to overcome

(Continued on page 56)



Movable Scaffold Solves Problem



SHORTAGE of skilled "riggers" for erecting the towering arches of one of the Navy's new all-timber blimp hangars "in a southern state," was overcome by building an immense, 180-foot high movable scaffold from which inexperienced small-town carpenters and sugar cane laborers could work in safety—and without fear.

The main framing of these hangars consists of the longest clear-span timber arches in this country. They have a span of 246 feet, a rise from base to center line of 140 feet. The hangar is more than

Top of page—Main framing of Navy's all-timber hangars contains the longest clear span timber arches in the country. These are 246 feet, with a 140-foot rise from base to center line.

Left — The view in the upper picture shows trusses being erected from the huge, 180-foot high movable scaffold which helped solve the shortage of skilled riggers. A close-up of the arch sections is pictured in the lower photograph. In erecting the arches, the eight panels on each side were assembled on the ground, then hoisted to position by means of derricks. The remainder of the long arches were built timber by timber, fastened by split-ring connectors, bolts and plant.

1,000 feet long, approximately 300 feet wide, and about 190 feet high from the floor to the top of the skylight that extends along the center of the roof.

There are 51 timber trussed arches which were assembled with 4-inch Teco split-ring, or shear plate connectors, and steel bolts, and in some cases with small steel plates.

All timber and lumber used in the hangar is fire-treated. The arch members, comprising approximately 1,000,000 board feet, are of Douglas fir, all of which were pre-cut on the Pacific Coast. The roof and sides are of 2-inch Southern pine dressed and matched decking, approximately 1,100,000 board feet of decking being required.

Right at the outset of the work on the hangar, the contractor realized he faced a problem in procuring skilled riggers anywhere in the country. He located a few skilled men and decided to fill in with small-town carpenters and local workers.

The contractor believed that by using the great movable scaffold, which fitted in under the arched roof of the hangar, from which the men could work, the unskilled riggers would be relieved of the fear natural to inexperienced men when working at such heights. No serious accidents occurred.

The front bay of the scaffold is about 180 feet high, 80 feet deep, and about 236 feet wide at the base, tapering off toward the top to conform to the arched space. It was moved under the arched interior on wooden rollers assembled in dollies by track jacks against a bucking block.

The scaffold was built with eleven working platforms on each side, each platform being about three feet under the panel points of the arches. The men at work building the arches, in looking down, would not see the floor of the hangar far below, but would see only the next lower deck.

In erecting the arches, the first eight panels on each side were assembled on the ground intact, then hoisted to position on the concrete supports by means of derricks. The remainder of the long arches then was built timber by timber, the

workers fastening together the truss timbers with the split-ring connectors, bolts and plates, as they worked from different levels. As the pre-cut timbers were legibly marked for their places in the arches, it was a comparatively easy job to fit the pieces into their proper places.

At the beginning of the work the contractor planned to erect one of the long arches per day, but toward the end of the work the men had become more skilled and were erecting two a day. The timbers, roof decking, and other materials were hoisted to convenient locations on the scaffold by eight derricks operated by compressed air hoists.

An electrically operated elevator ran from the floor to the top platform, carrying the workers to and from their jobs at the various levels. The scaffold was moved 20 feet from a completed arch to the next section in approximately 20 minutes.

T. C. I. Among South's Largest Groups Honored by Army-Navy "E" Award

TENNESSEE Coal, Iron and Railroad Co., United States Steel Corporation subsidiary, whose manufacturing division was awarded the Army and Navy "E" early this year, is understood to be one of the largest groups of men so honored in the South.

Three of the company's plants received awards in January. Consecutive ceremonies were held at the Ensley Works, Fairfield Steel Works and Bessemer Rolling Mill on the same January day, as high army and navy officials conferred the "E's".

Maj. Gen. Harold R. Bull, commanding general of the Replacement and School Command, Army Ground Force, Birmingham Ordnance District, and Col. E. C. Bomar represented the army and Capt. R. T. Hanson, inspector of naval material for the Atlanta district, the Navy, the latter presenting token pins to a representative employee from each plant.

Robert Gregg, T. C. I. president, accepted the flag for each of the three plants. Masters of ceremonies at the three ceremonies were: W. D. Moore, president of the American Cast Iron Pipe Co., at Ensley; Thomas W. Martin, president of the Alabama Power Co., at Fairfield, and Hon. Gardner Goodwyn, circuit court judge, at Bessemer.

Continental Gin First Holder of Navy "E" in Southeast

CONTINENTAL Gin Co., Birmingham, Ala., manufacturer of cotton ginning machinery, conveying, elevating, and power transmission equip-

ment, has held its Navy "E" since October, 1941, with three stars being added since that time. Pointed to as the first winner of such an award in the southeast, and the second in the South, Continental Gin under the leadership of Merrill E. Pratt, its president, offered its facilities to the navy and army early in the emergency.

Officials of the company are proud of the fact that this was done on a true conversion basis from that of the world's largest manufacturer of cotton ginning machinery to that of army and navy materiel, using basic plant facilities. In addition to its contribution to the South's industrial war effort, Continental Gin Co. has manufactured conveying, elevating and power transmission equipment for magnesium and aluminum plants in seven states.

Koppers Company Division Proud of Federal "E" Awards

ONE of the earliest recipients of the Maritime Commission's "M" is the Bartlett-Hayward Division of the Koppers Company at Baltimore. "We are proud of meriting this award, as well as the Army-Navy "E", and of the additional award of stars with both awards, indicating a continuance of such merited performance," says F. H. Linthicum, sales manager of the division. The Maritime "M" was awarded the concern in August of last year, the first gold star being added last April. The honor was for production of ship propellers. W. F. Perkins is Koppers vice president in charge of the division.

Award ceremonies for the Army-Navy "E" were held in January of this year for the American Hammered Piston Ring Division of Koppers Company, also at Baltimore. Approximately 5,500 people saw Rear Admiral E. M. Pace present the flag and Col. Richard N. Atwell, the employe pins. Allen W. Morton, Koppers vice president, accepted the pennant on behalf of his division.

Bankers Association Head Long a Staunch Advocate of Private Capital Rights

LEE Wiggins, recently elected president of the American Bankers Association views the fight of the country's bankers against further encroachment by federal agencies as "the front line trenches of the fight to preserve this nation against a socialistic state." Writing in the Southern Banker, several months ago, Mr. Wiggins pointed out that his organization has challenged the Government attempts to socialize the American credit system and has carried on a successful defense against establishment of new agencies since 1939.

The tide is turning, Mr. Wiggins believes, because the people of the country are beginning to realize the threat emergency proposals are to the American economy. He states "it has been the history of the nations of Europe, Germany, Italy and others that the dictator's first move is to secure the control of the credit system of his na-

(Continued on page 48)

Equipment Manufacturers News

Twin Events Feature Republic Steel Ceremony

Two events—one indicating past production records and the other promising increased production for the future—took place October 28 at the new No. 5 blast furnace of Republic Steel Corporation. The events were the lighting of the new furnace and the presentation of the maritime "M" award by the U. S. Maritime Commission.

The furnace with a daily capacity of 1300 tons pig iron was officially lighted by T. M. Girdler, chairman of the board, Republic Steel Corp. and Consolidated Vultee Aircraft Corp. The Maritime "M" was presented to J. L. Hyland, district manager, representing the plant as a whole, by Rear Admiral Howard L. Vickery, former Cleveland and vice chairman of the Maritime Commission. Admiral Vickery also made token awards of the Maritime "M" pin to five employees.

Construction on the new blast furnace furnace started in February, 1942. It has only one equal in the corporation—a new furnace at Chicago. About 70 per cent of its daily output of pig iron will go into ship plate. In addition to the blast furnace itself there is a new power plant with two 6000 hp. boilers, and an unloading dock with two Hulett unloaders provides a capacity of one million tons of material. Three preheating stoves for the blast furnace contain nearly five acres of brick heating surface.

To build the new plant it was necessary to move the Cuyahoga river westward and a part of the plant itself is built on the old river bed. This meant sinking 25 caissons filled with concrete down to bed rock to support the furnace. Navigation in the Cuyahoga has been extended to the new plant which is south of the Clark Avenue bridge.

The first molten iron came from the 105½ foot giant furnace about forty-eight hours after the furnace was lit by Mr. Girdler. Also participating in the furnace lighting ceremony was R. J. Wyssor, Republic president.

The Maritime "M" is the first to be awarded in Cleveland and the twelfth in the state. Only 134 "Ms" have been given throughout the country, most of them to shipyards. It was given the Cleveland plant in recognition of the outstanding job which has been done in converting the 98-inch strip mill to rolling steel plates for ships. The strip mill last month broke all of its production records when it turned out more than 115,000 tons of product, of which 80,000 tons were ship plate.

Post-War Possibilities Stressed For Improved Rust-Proofing

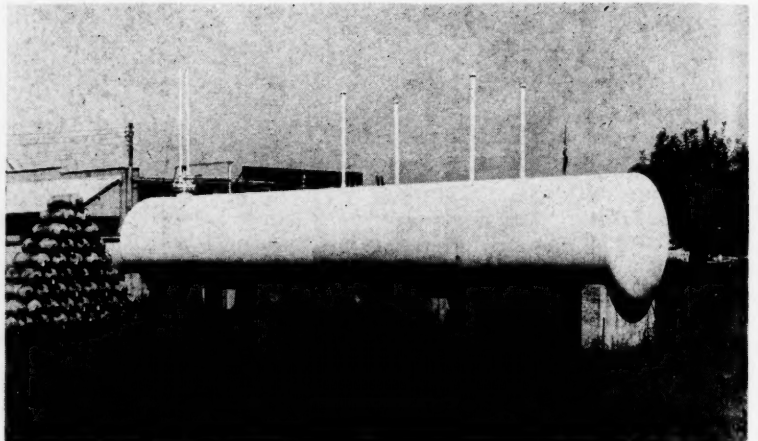
An improved Corronizing process for rust-proofing metals was announced last month in connection with the Metal Show at Chicago by Standard Steel Spring Co., whose officials emphasized the method's post-war possibilities in conserving the country's resources by combating rust, which each year destroys an estimated 1,800,000 tons of steel.

"Corronizing," said Walter Munger, sales manager of the company's Corronizing division, "is a trade name for something of vital interest to every individual and every branch of industry. In plain language, Corronizing is a process for rustproofing steel," and its meaning to the consumer is "many additional years' use for household articles which heretofore have been rendered unfit by rust after varying periods of use."

Mr. Munger described the process as one of electroplating by means of which a number of very thin layers of metals and alloys with corrosion resistance are deposited on metal-base stocks. The procedure consists essentially of first electroplating a layer of nickel approximately 50 millionths of an inch thick and then plating over the nickel with nickel-zinc alloy.

Standard Steel Spring Co. is owner of the Corronizing process, he pointed out, and the Corronized label will be used only by licensed firms operating under specifications of quality covered by agreement with the owning organization, which will make technical advisors and service engineers available, as well as merchandising assistance.

The post war market for Corronized material and products is estimated at \$50,000,000. A number of manufacturers are today using Corronized material, others have tested and approved the process and still others are awaiting the removal of critical material and metal restrictions to make use of the processed metal, according to Mr. Munger. Advent of peace will see an extensive advertising campaign launched to familiarize the



Above—An 18,000-gallon propane tank built by the Chicago Bridge & Iron Co., Chicago, for the Verkamp Corporation, Cincinnati, which operates a bulk storage plant from which cylinders are filled for customer consumption.

consumer with the Corronizing label. This is to be done through the newspapers of seventeen of the largest population centers and is expected to result in a demand on the fabricator, who in turn will purchase tonnage from the steel companies.

Some of the industries interested in using the rust-proofing process are manufacturers of wire cloth, screening, thermostats, outboard motors, fencing, range boilers, hot water tanks, tubing, stokers, furnaces, heaters, gutters and spouting, automobile bumpers, mufflers and pipe, air conditioners and refrigerators, railway telegraph and telephone equipment, washing machines and laundry equipment, roofing and siding, barn and dairy equipment, tanks, springs, cans and tubs, pre-fabricated buildings, pumps and guns.

Deduct-O-Graph For Quick Payroll Calculations

George S. May Co., business engineering firm of 2600 North Shore Avenue, Chicago, has designed a device for making quick, automatic calculations of payroll deductions under the present tax program. George S. May, president of the concern, said in announcing the



device, that his engineers had started to work on the Deduct-O-Graph idea as soon as deduction tables under the new pay-as-you-go tax law were available from the Treasury Department and that the Treasury Department had been responsible for the first business requests for the device, which had been tested by payroll officials before it was made available for general use. The Deduct-O-Graphs cannot be purchased, but they can be obtained by writing the company on a business letterhead.

Service of Dedication Held

Employees of the Clark Tractor Co., recently held a public dedication service to pledge themselves for still greater effort in their war work which already ranks high. In contrast to striking influences and demoralizing effects the gesture is hailed as one which will be received by the forces overseas with great welcome. "The men and women of Clark's rightly consider themselves 'Soldiers of Supply,'" says a company announcement and "they are sincere about their obligations to the war, that they have unanimously signed the following pledge which was underwritten by the shop committee and read by the employees as a group. The pledge follows:

We, the men and women of Clark, in Battle Creek, Michigan, in all humility of spirit and in reverent attitude, dedicate ourselves to the high task of serving God and Country through our daily work. May the spirit of our loyalty and devotion be like the spirit of our co-workers in uniform as they serve our Cause, our nation and ourselves, even unto the sacrifice of life itself.

Link Belt Acquires Minneapolis Supply Concern

Link-Belt Company, Chicago, according to an announcement by W. C. Carter, president, has purchased the manufacturing plant and inventory of Link Belt Supply Company, Minneapolis. Ray S. Wood has been appointed plant manager.

Link Belt Supply Company, since 1900, has been serving as a distributor of Link-Belt products in Minneapolis, St. Paul and nearby territory. The Minneapolis organization will be retained, present manufacturing facilities improved, and stocks expanded as rapidly as possible.

Edgar Lyon Dies

Edgar Lyon, president of Lyon, Conklin & Co., Inc., tin plate and metal dealers, of Baltimore, Md., and Washington, D. C., died on October 14, at his summer home at Millboro Springs, Va., 71 years old. Mr. Lyon had not been active in the company for the past ten years. The company was founded in 1860 by his father, William L. Lyon. At his father's death in 1907, Mr. Edgar Lyon was chosen the president. Mr. Lyon was educated at private schools of Baltimore before becoming associated with his father's company. Besides his widow, Mrs. Molly R. Lyon, he is survived by a stepdaughter, Mrs. Mabel Connor of Millboro Springs, Virginia; two sisters, Miss Fanny Lyon of Baltimore, Md., and Mrs. Hugh F. Van Deventer of Knoxville, Tenn. He was buried in Greenmount cemetery, Baltimore, Md.



Above—Col. Robert H. Morse, president of Fairbanks, Morse & Co. addresses gift packages for 1,500 of his company's employees now in the service, as R. H. Morse, Jr., general manager, looks on. "The men and women of the services are doing a grand 'job,'" Col. Morse declared, "and we are not forgetting them." The packages weigh the limit allowed by postal authorities and contain such articles as peanut brittle, tooth paste, razor blades, soap, playing cards, sewing kit and bag of buttons.

Acquires Office Building

(Continued from page 47)

and penthouse. Because of existing leases, the Corporation does not expect to occupy its new headquarters until next July. The various offices of United States Plywood in New York City will be consolidated into the new executive quarters. At present the Corporation's executive offices are located at 616 West 46th Street, while others are at 103 Park Avenue, the latter including the Flexglass and Flexwood sales and show-rooms, the Weldwood glue department, and the Corporation's architectural display.

United States Plywood Corporation operates plywood warehouses in fifteen cities across the country, as well as manufacturing plants at Algoma, Wisconsin; Seattle, Washington; Orangeburg, South Carolina; New Rochelle, New York, and Lakeport, New Hampshire.

Koppers Company Buys Verona Coated Products Firm

The Koppers Company, Pittsburgh, have bought the physical assets of Coated Products Corporation, Verona, Pa. The business will be continued as the Coated Products Division of Koppers Company.

With this transaction, Koppers has acquired all rights in the process of weather proofing and corrosion proofing of prefabricated metals and steel shapes, a process of the former owner.

Morton I. Dorfman will be manager of the new division.

Link Belt Promotions

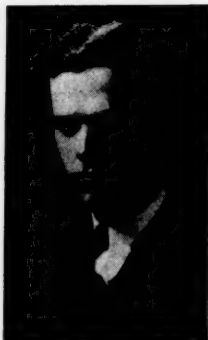
Several promotions in the official family of the Link-Belt Company, Chicago, are of interest. Edward J. Burnell has been transferred to the Executive Office where he will serve as Vice-president in charge of sales.

Nelson L. Davis has been made Sales Manager for materials handling machinery; William H. Kinkaid, Sales Manager for power transmission machinery, and C. Walter Spaulding, Sales Manager for power transmission equipment required by original-equipment manufacturers.

Harold L. Hoftman, heretofore manager of the company's Atlanta plant, becomes general manager of the Pershing Road plant in Chicago, succeeding Mr. Burnell at that point.

Richard B. Holmes, Indianapolis District Manager, has been appointed manager of the Atlanta plant.

David E. Davidson, District Manager at Detroit, has been named District Manager at Indianapolis.



Above—Victor P. Shaffer, who has been named engineer in charge of design for the process division of H. K. Porter Co., Inc., of Pittsburgh. A graduate of the University of Colorado, Mr. Shaffer will also direct an expanded program of development and research being launched by the Porter organization.

WELDING POSITIONING EQUIPMENT—

4-page two-color bulletin No. 201. Presents in concise form full line of Ransome welding positioning equipment: specifications, important features, load rating tables and dimensions are included. Ransome Machinery Co., Dunellen, New Jersey.

POST-WAR BUILDINGS—

Attractively illustrated booklet, "A Robertson's-Eye View of Post-War Buildings" visualizes a multitude of wonderful and desirable things to be made available soon after V-Day arrives, including such things as: flivver planes for all, possibility of helicopter type; cheap, beautiful and economically-run automobiles; television in full color, and possibly with a third dimensional effect; individual "Walkie-Talkie" radios with which individuals can talk to each other . . . and many other things more wonderful . . . which now are only a gleam in a scientist's eyes. H. H. Robertson Co., Pittsburgh, Pennsylvania.

PRESSURE-TREATED WOOD—

26-page book designed as a guide in material selection for engineers, architects, contractors, builders and maintenance supervisors, with illustrations of typical installations of preserved wood: general construction, farm buildings, highways, industry, marine, oil, mining, railroads and utilities. Write for "Economical and Permanent Construction with Pressure-Treated Wood," Koppers Company, Wood Preserving Division, Pittsburgh.

PORCELAIN ENAMEL—

24-page booklet with useful data for product engineers, designers, architects and others interested in the use of porcelain enameled iron. Engineering information on abrasion and friction resistance, weather resistance, resistance to shipping, resistance to thermal shock, color fastness and range, finishes available, chemical resistance and physical properties of porcelain enamel. American Rolling Mill Company, Middletown, Ohio.

SELF-CONTAINED ELECTRIC CAR SPOTTER—

16-page illustrated booklet 1992. Covers vertical-capstan units of 5,000 and 10,000 lbs. starting pull capacity. Link-Belt Company, 2410 West 18th St., Chicago 8, Ill.

NORTON MULTIPURPOSE GRINDER—

8-page folder illustrating Norton Type C Grinder. Norton Company, Worcester 6, Mass.

Advocates Capital Rights

(Continued from page 45)

tion." The method of seizing such control varies abroad, but in this country "it has taken the form of the so-called socialized credit."

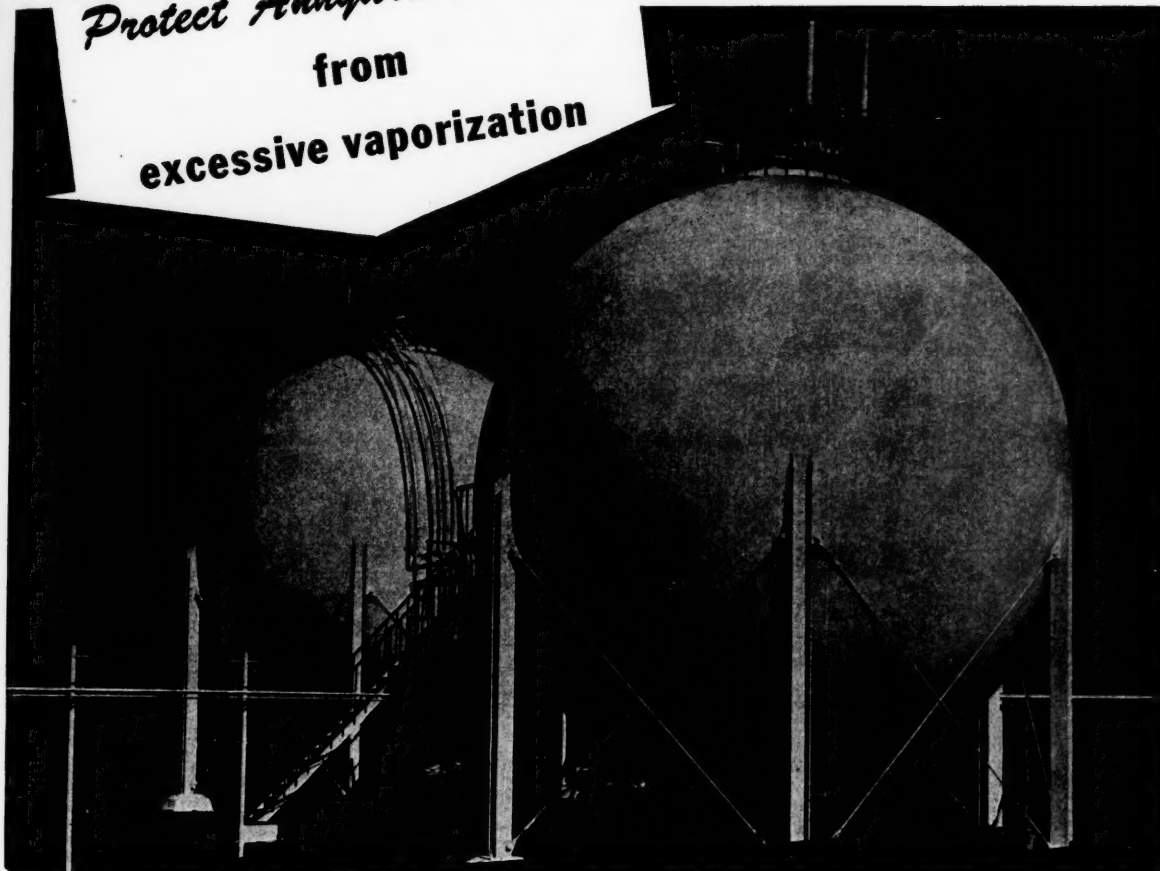
Mr. Wiggins, in addition to being a leader of the nation's bankers, is president of the Bank of Hartsville, progressive financial institution of Hartsville, one of the largest towns in Darlington County, of northeastern South Carolina. He has long been a staunch advocate of the preservation of the rights of private capital and has taken an active part in the effort to keep American banking unshackled by socialistic resolutions and restrictions.

Recognizing the fact that the country has been in the throes of a social revolution for the last decade, Mr. Wiggins states that bankers should not fool themselves about what the public thinks of banks. They must be realists, be cautious, and look hard, cold facts in the face. It is his opinion that "Bankers should provide an intelligent, courageous and patriotic leadership that will help steer this country through present difficulties and toward a constructive solvent private economy in the future."

HORTONSPHERES

Protect Anhydrous Ammonia

**from
excessive vaporization**



The Hortonsphere is a "Jack-of-all-trades" when it comes to providing efficient storage and handling facilities for the countless liquids and gases used at chemical plants, refineries and process industries. For example, the two Hortonspheres shown were installed at a chemical plant for the pressure storage of anhydrous ammonia. They were designed for an operating pressure of 50 lbs. per sq. in. and have a capacity of 2,500 bbls. each. Because these vapor-tight vessels are capable of withstanding pressures built up in the vapor space at

normal temperatures without venting, they are able to materially reduce the amount of vaporization that takes place from the liquid ammonia.

Those engaged in the production of synthetic rubber find Hortonspheres the most logical choice for the storage of butadiene since this essential raw material must be stored and handled under pressure to prevent excessive loss by evaporation.

If you are confronted with the problem of handling and storing liquids and gases, it will pay you to investigate the possibilities of the HORTONSPHERE.



Awarded to our
shipyard at Sencu,
Ill. and dry dock yards
at Bureka, Calif. and
Newburgh, N. Y.

CHICAGO BRIDGE & IRON COMPANY

Birmingham 11530 North Fiftieth Street
Houston 15614 Clinton Drive
Tulsa 31611 Hunt Building
New York 63313-165 Broadway Building
Cleveland 152216 Guildhall Building



Chicago 42106 McCormick Building
San Francisco 51040 Rialto Building
Philadelphia 31619-1700 Walnut Street Building
Havana402 Edificio Abreu
Washington 5330 Bowen Building

Plants in **BIRMINGHAM, CHICAGO**

and **GREENVILLE, PENNSYLVANIA**

NOVEMBER NINETEEN FORTY-THREE

South's Industrial Awards

(Continued from page 34)

constructed by Bechtel-Dempsey-Price, Tulsa; contract for construction of the compressor station and dehydration plant has been awarded to Hudson Engineering Corp., Houston, Tex.; the gathering system will be constructed by Anderson Brothers, Hamilton, Ohio; contract for the telephone line construction has been awarded to R. E. Mattison & Co., Britton, Okla.; all of the design, engineering and inspection of this project is being handled by Cities Service Transportation and Chemical Co.

SOUTH CAROLINA

HARLEYVILLE—plant—War Production Board approved use of materials needed to complete an alumina-from-clay pilot plant on which construction has started; Daniel Construction Co., General Contractor; Defense Plant Corp., owners.

TENNESSEE

MEMPHIS—tire plant—Firestone Tire & Rubber Co., Akron, Ohio, starting work on addition to local plant; 100,000 square feet of floor space; rein. conc., construction; will be integrated with plant's present structure.

TEXAS

Pipe line—Stanolind Pipe Line Co., Barton P. Sibole, Pres., Stanolind Bldg., Tulsa, Okla., let following contracts for laying the 385-mile 16-in. crude oil pipe line from Slaughter pool in West Texas to Cushing-Drumright area in Oklahoma; I. C. Little, of Dallas, has contract for first 75-mile unit from Sundown in the Slaughter pool in a northeasterly direction; Sharnan & Allen, of Houston, second leg of line; Midwestern Engineers, Tulsa, Okla., the third and fourth units and O. C. Whitaker, Fort Worth, the fifth unit; river crossings, constituting the sixth phase of the work is to be let; plans include pump station at Sundown and at Brecht; National Tube Co. and A. O. Smith Corp. will furnish pipe.

Transportation Equipment Defense Plant Corp., increased contract with Nueces Transportation Co., Corpus Christi; \$100,000.

DALLAS—repairs—Southern Prem Co., 2403 Ervay Street, Dallas, let contract to Jack Barr, Jr., 2856 Gladstone Street, for repairing fire damage to buildings; plastering ceiling, building cold storage addition; heating, moving elevator, etc.

HAWKINS—gasoline plant—Humble Oil & Refining Co., Humble Bldg., Houston, and Natural Gasoline Corp., P. O. Box 1589, Tulsa, Okla., has under construction natural gasoline plant; will be operated by Natural Gasoline Corp.; construction is under supervision of Gasoline Plant Construction Corp. of Houston; total capacity will be approximately 60,000 gal. daily; will be capable of manufacturing propane, Iso-Butane, normal butane, Iso-Pentane and motor fuel; absorption will be effected at 200 lbs. pressure and volume of gas handled will be 15,000,000 cu. ft. daily; Anderson Brothers Construction Co., Tulsa, Okla., has contract for laying approximately 100 miles of gathering lines, varying in size from 24-in. to 2-in.

HOUSTON—loading platform—P. M. Marshall, 2216 Congress Ave., Houston, has contract for construction of loading platform, conveyor system and improvements, at 2017 Preston Ave.; Joseph Finger, Inc., 17th Floor National Standard Bldg., Houston, Archt.

HOUSTON—plant—Albert Bertelsen, 2803 University Blvd., has contract for 2-story plant; Mack St., for Reed Roller Bit Co.; brick and struc. clay tile; conc. found.; concrete and tile floors; glass blocks; built-up roof; Herman Lloyd, Archt., 4605 Montrose Blvd.; cost \$26,000.

McALLEN—warehouse—L. H. Moore Canning Co., 206 S. 19th St., erect warehouse, Beach Ave. and North Repot Rd.; 1 and 2 stories; 100x200 ft.; brick and struc. clay tile; conc. floor slabs; cost \$22,000; owner builds.

MISSION—expansion—Bordo Products Co., 512 E. Railroad St., Weslaco, lessee for

processing plant; Missouri Pacific R. R. Co., Pat J. Neff, executive vice-president, Houston, plans reconditioning and expansion.

VIRGINIA

FRONT ROYAL—expansion—Rust Engineering Co., Clark Building, Pittsburgh, Pa., will erect the building and install the equipment in the addition to the plant for American Viscose Corporation, Gerald S. Tompkins, plant manager.

Proposed Industrial

(Continued from page 34)

chemicals, for the St. Regis Paper Co., 230 Park Avenue, New York.

ST. LOUIS—air subsidiary—Missouri Pacific and its subsidiary, Texas & Pacific Railway Co., Guy A. Thompson, trustee, has authority to organize a subsidiary air lines company to transport passengers and freight over routes parallel to the Missouri Pacific Railroad tracks now serving the West and Southwest.

NORTH CAROLINA

GASTONIA—cold storage—George Poston acquired plant on S. York St. will erect addition.

OKLAHOMA

TEXAS COUNTY—pipe line—Federal Power Commission authorized the Cities Service Transportation & Chemical Co., to construct a 26-in. gas pipe line, 231 miles long, from Hugoton gas field in Texas County to Blackwell compressor of Cities Service Gas Co., in Kay County; also authorized Cities Service Gas Co. to construct certain additions to its existing facilities to handle additional gas to be delivered through the new Hugoton line; the 231 mile line to cost \$10,635,000 will incorporate natural gas supplies for Cities Service system by 140,000,000 cu. ft. a day as its initial carrying capacity, to be increased to 240,000,000 cu. ft. by installation of additional compressor facilities to be added by 1946; office of Cities Service Gas Co., Bartlesville, Okla.

SOUTH CAROLINA

BATESBURG—furniture—Harold Shealy and B. J. Bouknight, have acquired buildings on Granite Street known as the Isaac Edwards buildings and will renovate at once.

BENNETTSVILLE—tire fabric—Firestone Tire & Rubber Co., Akron, Ohio, acquired Bennettsville plant of Marlboro Cotton Mills, will convert it for manufacture of cotton tire cord fabric; erect small addition for housing of new machinery.

ORANGEBURG—saw mill—McLean Lumber Co. plans rebuilding burned saw mill.

CHATTANOOGA—repairs—Tennessee Valley Chair Co., C. Z. Taylor, make fire damage repairs to building, 3108 Dodson Ave.; cost \$15,000.

TEXAS

Pipeline—Texas Pipe Line Co., Fort Worth, will construct 32½ miles of 6-in. line from Quanah to Vernon and 18 miles of 4-in. line from Vernon to Electra.

LONGVIEW—expansion—Madaras Steel Corp., will double capacity of steel foundry; adding an additional equipment at cost of \$75,000.

SAN ANTONIO—bakery building—Alamo Bakery Co., c/o E. Escamilla, Manager, 803 Wyoming Street, will erect bakery, corner Wyoming and Cherry Streets, if priority is granted; brick construction; 90x139; Leo M. J. Dielmann, 145 North Street, San Antonio, Architects.

SAN BENITO—remodeling—McDavitt & Lightner, 1101 Roosevelt St., Brownsville, plans remodeling packing plant, 800 S. Sam Houston St.; 1-story; frame.

TEXAS CITY—formaldehyde plant—Monsanto Chemical Co., New York, will construct \$1,000,000 plant at Texas City; M. K. Eckert, general manager of company's styrene plant.

VIRGINIA

NORFOLK—cold storage—National Enterprise Corporation of Virginia, John J.

Leterman, Pres., acquired building at northwest corner of Granby and 15th Sts., will install modern refrigerated fur storage vault; work to start in December.

Southern America Seeks Power Development

(Continued from page 33)

also will contribute to the electrification of the railroads and provide power for new industries.

At the present accelerated rate of consumption it is estimated that the industries of Chile will consume 600,000 tons of cement per annum by 1945, or nearly double the production of 1939. Chilean interests have purchased two unused cement plants in the United States which are to be dismantled for shipment and set up in the vicinity of Coquimbo, Chile.

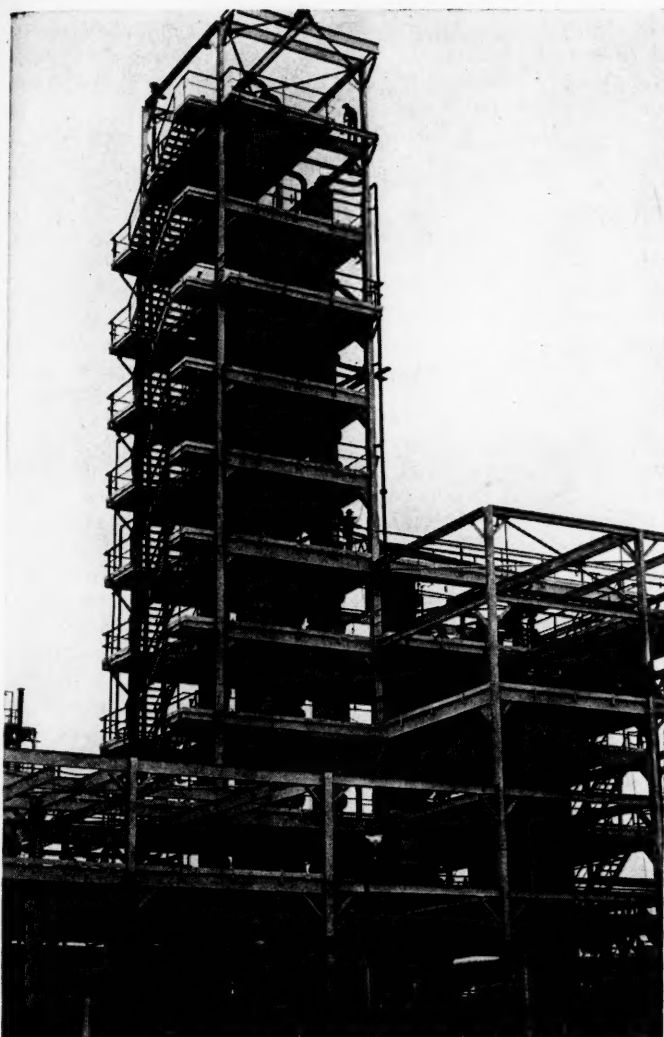
Guillermo More, Chief of the Department of Energy and Combustibles of the Development Corporation of Chile, describes the work in the four zones of activity of his department as follows:

"In the southern zone in the vicinity of the estuary of Reloncava and Porte Montt, surveys have been made for the 'Ralun' generating plant which will use the waters of Lake Todos los Santos and will produce 50,000 kilowatts of initial power and at least 126,000 in full development. Todos los Santos is one of a chain of beautiful lakes. It is 22 miles long, 500 feet above sea level and only fifteen miles from the coast. The nearby and smaller Lake Chapo can produce 39,000 kilowatts at a proposed site known as 'Canutillar.'

"In the zone of Valdivia-Corral the 'Manio' plant on the San Pedro River can produce 50,000 kilowatts with a possible ultimate production of 125,000 kilowatts. A 36-mile transmission line will bring the power to Valdivia and 20 miles more will bring it to Corral.

"In the zone of Talcahuana-Concepcion-Penco the 'Abanico' plant on the River Laja is now under construction with an immediate potential of 40,000 kilowatts and a final capacity of 100,000. A 100-mile transmission line connects with the city of Concepcion. The extraordinary economy achieved in the construction of the plant warrants this unusually long transmission line. This is the

(Continued on page 52)



Structural Steelwork by **VIRGINIA BRIDGE**

*A short title with a
Long Meaning*

STEEL STRUCTURES All Types

Plants: ROANOKE, VIRGINIA
BIRMINGHAM, ALABAMA
MEMPHIS, TENNESSEE



I O THE many construction engineers and builders throughout the country who have experienced Virginia Bridge service, it means engineering, fabricating and erecting performance of the highest order—steelwork that has a background of nearly fifty years diversified construction experience—intelligent and effective cooperation to meet job emergencies, and intangible factors of service that give a plus-value to every contract.

Today it has a special meaning when all our tangible and intangible resources are devoted to building the structures and plants where victory begins. They are available to serve NOW any construction essential to the war program. Tomorrow "Steelwork by Virginia Bridge" will have added meaning for peacetime construction because of the invaluable experience gained today.

VIRGINIA BRIDGE COMPANY

ROANOKE BIRMINGHAM ATLANTA MEMPHIS NEW YORK DALLAS

UNITED STATES STEEL

NOVEMBER NINETEEN FORTY-THREE

South American Power

(Continued from page 50)

most economical of all the plants included in the program.

"In the zone of San Antonio just south of the city of Santiago, the 'Rapel' plant is to be installed on the Rapel River with an initial capacity of from 60,000 to 120,000 kilowatts. A transmission line of 34 miles will connect with the port of San Antonio. Work has not yet begun on this dam but the plans are far advanced."

The Development Corporation of Chile has agreed to allocate the sum of 900 million pesos for the construction of this hydroelectric plant on the Rapel River. This, it is said, will be the largest installation of its type in South America, involving the use of three million cubic meters of water. A part of the power will be used to electrify the state railways.

The copper plant with a capacity of 30,000 tons of finished copper a year which Chile recently purchased from the United States, will produce copper wire for this na-

tional electrification program.

Bolivia, as one of the mountain republics, has large reserves of hydroelectric power. Plants developing some 30,000 kilowatts are functioning at present and supplying light to cities and power to the mines. But this is only a fraction of the total possibilities in this field. Some authorities estimate that up to 4,000,000 kilowatts could be developed in this republic. Lake Titicaca, it is believed, can be made to produce 700,000 kilowatts which is more than is now produced by Boulder Dam.

Colombia now has a total of 346 electric plants of which six belong to the national government or to the departments, 199 to the municipalities and 141 are in private hands. Together they produced 293,782,493 K.W.H. in 1942 with a value of 10,817,192 Colombian pesos. The consumption of electric power in Colombia more than tripled between 1933 and 1942. The increase amounted to 310 per cent.

Colombia is now considering the construction of a plant in the vicinity of the city of Manizales in the

Department of Caldes to serve the industries of this region, the cost to be in the neighborhood of 2,000,000 Colombian pesos.

A 12,000 kilowatt hydroelectric plant is planned for the Paez River between Paicol and Carnicerias, Department of Huila, and another plant is planned for Florencia in the Caqueta district at a cost of 70,000 pesos. Other activities include the completion of the hydroelectric plant at Trumeque, Department of Boyaca, and the beginning of work on a station at Titiribi, Department of Antioquia.

A recent Colombian law, known as the Economic Plan, authorizes the issue of 50 million pesos in internal, four per cent, 30-year bonds to be used, in part for the nationalization of public utility enterprises now privately owned. The services of interest and amortization are to be met by the income from the enterprises nationalized.

The government of Peru, with the aid of an Export-Import Bank loan, is building a big hydroelectric development at Canon del Pato

(Continued on page 54)

THE RETURN OF COMPETITION

After the war, competition in industry will be keener than ever before. Many millions of people who have been mobilized for war will be turned back into normal pursuits. New industries, new processes and new markets will dominate the economic picture.

The manufacturer who can meet his competitors' cost will be the one to survive. The low cost industries will be the ones to profit.

In this connection, remember that—

During the depression years of the early and middle thirties, industry expanded at a greater rate in the Seaboard Southeast than anywhere else in the Country.

The reason—

Operating factors are favorable and hence manufacturing costs are low.

When you plan on plant expansion, let us submit facts and figures on locations in the Seaboard Southeast. The inquiry will cost you nothing. It may be worth a lot to you.

**INDUSTRIAL DEPARTMENT
SEABOARD
AIR LINE RAILWAY**

WARREN T. WHITE
General Industrial Agent, Norfolk, Va.



While cosmopolitan in its general appeal, and modern up to this moment in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates \$3.00 per day and up. Every room with bath or shower. Centrally located.

The Southern Hotel
BALTIMORE 2

Exceptional Facilities for the Collection of Drafts

Remittance made on day of payment.

BALTIMORE COMMERCIAL BANK

ROBERT C. WILLIS, JR., President
BALTIMORE 2, MARYLAND

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YOURS for the asking



THE impressive production records now being achieved in the Central West and Southwest promise new and richer opportunities there for business and industry when the war is over.

These rapidly expanding industrial areas are continually surveyed by Missouri Pacific Lines' industrial and research engineers; facts and figures thus assembled are carefully analyzed, catalogued and kept up to date. You'll find them helpful now in your postwar planning — and they are yours for the asking.

We'd welcome an opportunity to make a special, confidential study, designed to fit your particular problems and needs. Your inquiry will receive prompt attention. Write or wire —

J. G. CARLISLE
Director

Industrial Development
1710 Missouri Pacific Bldg.
St. Louis (3), Mo.

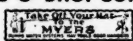


new FREE BOOK

Get Myers new Manual on the Care and Maintenance of Pumps and Water Systems. No matter what make of pumping equipment you own it tells you how to make minor adjustments and simple repairs. Points out preventive measures to avoid serious breakdowns which result in loss of valuable production time. It's Free for the asking.

See your Myers dealer for repair parts as well as expert servicing on any make of pumping equipment.

THE F. E. MYERS & BRO. CO.
138 Orange St.
Ashland, Ohio



Successful manufacturers do not locate plants by chance. Locations are decided only after exhaustive research. Below is a partial list of nationally known manufacturers who have followed their investigation of Tennessee's industrial advantages with the investment of millions of dollars:

Aluminum Company of America
American Zinc, Lead & Smelting Co.
American Cyanamid & Chemical Corp.
Armour and Company
American Bemberg Rayon Corp.
Bemis Bros. Bag Co.
Blue Ridge Glass Co.
(Corning Glass Works)
Continental Can Co.
Combustion Engineering Co., Inc.
Crane Company
Cudahy Packing Co.
du Pont de Nemours, E. I. & Co.
Firestone Tire & Rubber Co.
General Motors Corp. (Fisher Body Div.)
General Shoe Corp.
The Glidden Co.
Goodrich, The B. F., Co.

International Harvester Co.
International Shoe Co.
International Minerals & Chemical Corp.
Kingsport Press, Inc.
Kraft Cheese Corp.
Knox Porcelain Corp.
Layne & Bowler, Inc.
Monsanto Chemical Co.
National Carbon Co.
Pennsylvania-Dixie Cement Corp.
Proctor & Gamble Co.
Stokely Brothers & Co.
Swift & Co.
Tennessee Eastman Corp.
(Eastman Kodak Co.)
Tennessee Copper Co.
United States Pipe & Foundry Co.
Victor Chemical Works
Consolidated Vultee Aircraft Corp.

One or more of these industrial advantages influenced their choice of Tennessee:

- ☆ An unsurpassed variety of industrial minerals and basic materials;
- ☆ Low-cost TVA hydro-electric power (18 billion kwh annual capacity);
- ☆ Huge coal-producing area for possible economical steam-power generation;
- ☆ Inexhaustible supply of industrially suitable water;
- ☆ Excellent railway, highway and air transportation facilities, plus economical river transportation to Midwest, Gulf, and South American ports;
- ☆ Ample State vocational-trained labor for every industrial requirement;
- ☆ Central location: more than 51% of the Nation's population is within a 500-mile radius;
- ☆ Opportunity for low-cost assemblage of raw materials from any point in South—a region with the greatest aggregate mineral production.
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South American Power

(Continued from page 52)

on the Santa River which flows into the Pacific just north of Chimbote Bay. Work on this project was initiated a year ago by Barton Jones, an electrical engineer who was previously associated with the Tennessee Valley Authority.

This project includes the installation of five generators of 25,000 kilowatts each. The first two units are expected to cost approximately \$4,000,000 and are scheduled for completion by the end of 1945. Total power potential of the Santa River is estimated to be in excess of 500,000 kilowatts.

Recent discoveries of magnesium in this region and the known coal deposits there add to the variety of the minerals in this region.

In order to augment the electric power supply of the city of Lima, a new dam is being built at Autisha a few miles east of the city. This will increase the power generating capacity to 91,000 kilowatts.

The Peruvian Government has approved the construction of 11 small hydroelectric plants but work is retarded through lack of equipment. At the end of 1942 Peru had an estimated electric power capacity of 225,000 kilowatts compared to 212,000 at the close of 1940. Production of electric power in Peru has increased 37 per cent since 1939, due to the growing industries.

Brazil has plans to harness the great Sao Francisco River with a series of dams and to exploit the agricultural and mineral resources,—iron, gold, mica, bauxite, quartz, diamonds and copper—of this 260,000-square mile valley.

The Sao Francisco River is 1,800 miles long and most of it is navigable through the stretches between the falls and rapids indicated below as power sites. Just below the city of Itaparica, and 140 miles from the mouth of this river, the great Paulo Affonso Cataracts have a fall of 265 feet. Here a hydroelectric station is projected to develop 600,000 horse power. Another falls

just above Itaparica is said to be capable of generating 200,000 horsepower. Higher up the river near Joaciro is a third power site and a fourth is much higher up near Pirapora. The American Technical Mission to Brazil has suggested a survey for the development of this river similar to the one used in developing the Tennessee Valley.

Brazil also plans to electrify more of its railroad mileage and work has actually begun on that 90-mile section of the Sorocabana railroad which connects Sao Paulo, the industrial metropolis of Brazil, with the important city of San Antonio. This railroad, which is double tracked through its entire length, is owned by the State of Sao Paulo. This electrification project will cost over \$10,000,000 and is expected to take about three years to finish.

The line is meter gauge, that is with the rails 39 inches apart as compared with 56½ inches of the United States railroads. The present rails are being replaced with

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heavier ones and the 80-ton locomotives now in use are to be replaced with 180-ton electric locomotives, said to be the heaviest electric locomotives ever built for meter gauge track. Ten of these locomotives as well as the coaches for suburban service have been ordered from the United States.

Brazil has abundant waterpower accessible to this line, which in the past has used imported coal and firewood. All available wood has been cut within several miles on either side of the line and wood must now be hauled for considerable distances. The Sorocabana Railroad has a total length of 1,316 miles and serves the Pocos de Caldes region of southern Brazil which is an important center for bauxite and other minerals. One branch of the line connects with the port of Santos.

Brazil now has a total of 1,343 electric power installations of various types supplying light and power to 2,179 communities. In 1940 Brazil had an installed capacity of 993,742 kilowatts of which 732,000 kilowatts represented hydroelectric plants and 193,140 steam plants. Nearly all the hydroelectric power at present produced in Brazil is concentrated in the industrial states of Sao Paulo and Rio de Janeiro.

Argentina at present has 700,000 kilowatts of installed electric power, of which 542,000 kilowatts are in the province of Buenos Aires. The republic has only 31,000 kilowatts of hydroelectric power, nearly all of which is in the provinces of Mendoza, Cordova and Tucuman.

As part of the national public works program Argentina plans to build a number of irrigation projects impounding large lakes in the northern and western region. Wherever possible this water also will be used to produce electric power, though power is secondary to irrigation.

A number of the South American countries have indicated their desires to have their electric power facilities controlled by their own nationals. They desire foreign equipment and foreign technical assistance more than foreign capital in the development of their water power resources.

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LUNKENHEIMER VALVES

Future of Fluorescent

(Continued from page 43)

two former handicaps in lighting, namely—glare and heat. Even the bare fluorescent tube is less bright than the summer sky and hence reasonably comfortable. For local lighting especially, the cool fluorescent tube permits higher foot-candles and closer mounting without interfering with bodily comfort.

The growth of fluorescent lamps will emphasize the need for more exacting methods of regulating service voltage and should influence the uniform adoption of standard voltages and frequencies throughout the country if not throughout continents. Probably the United States will continue to be the outstanding leader in fluorescent lamp manufacture and experience because England's production for the present is limited to one size only—the 85 watt, this for open reflector jobs solely, and relatively few fluorescent lamps are known to have been made in Ger-

many or any other countries.

If, as seems reasonable, the electric utility capacities in the immediate postwar years will considerably exceed the power demands, then there will be sales effort placed upon an extension and a modernization of lighting and a more liberal view taken of what constitutes adequate lighting levels. With the present fluorescent lamp it is possible to obtain ten times the amount of light for the same cost when compared to thirty years ago. Should this ratio continue we might find artificial light to be a very cheap commodity and an improved type of fluorescent illuminant jointly with companion illuminants of the electronic or discharge type might easily lead to 500 footcandle jobs in stores and factories instead of 50.

In short, we are graduating from miniature suns imprisoned in glass bottles to the use of large area or extended light sources that more nearly resemble in their results the wealth of light from the summer sky or the glorious colors of an autumn sunset.

Synthetic Rubber a Stabilizer

(Continued from page 31)

tons a year, as compared with our pre-war importations of about 600,000 tons a year of natural rubber, will have the effect of placing a ceiling on prices and thereby eliminating the very wide fluctuations that have been so disastrous in the past. A ceiling on the top cost of rubber at a reasonable figure will encourage large mass uses, such as flooring, paving, insulation, shock absorbing, etc. Mass consumption has been curtailed in the past because of the investment required for plant and machinery, and the possibility of price fluctuations that might carry the cost of raw materials to an uneconomical point. In other words, an industry profitable on a raw material cost of 15c a pound, may be unprofitable if that same raw material suddenly jumps to 30c a pound.

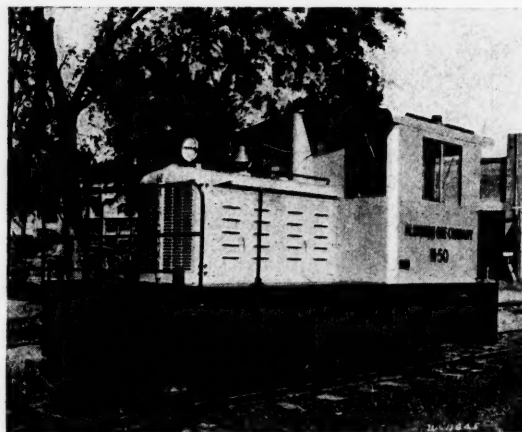
To produce 850,000 tons of synthetic rubber required such huge investments that private in-

(Continued on page 58)

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Synthetic Rubber a Stabilizer

(Continued from page 56)

dustury was unwilling to undertake the responsibility on the nationwide scale required to solve the dilemma created by the fall of Singapore. As a result, the broad policy has been for the government to finance the erection of the new plants required both to polymerize and to produce the raw materials necessary, and then under a management fee agreement, to turn their operation over to experienced rubber organizations. After the war it is inevitable that many of these fine new plants will continue to operate, either under private ownership or some such government plan as was evolved in the case of Muscle Shoals. The synthetic industry is here to stay.

Over the years the consumption of rubber of all kinds will expand tremendously under an economy which automatically regulates cost within comparatively narrow limits. It will be some years, however, before the world can absorb

all the pre-war output of natural rubber, and also the potential 850,000 tons of synthetic, which is the goal of production in the United States. There are bound to be radical readjustments on both sides. One cannot tell what artificial factors also may be injected after the war, such as tariffs, the liquidation of national debts, and worldwide governmental trade policies. Whatever the future holds in store, the great fact remains that henceforth America is independent of the East in a national emergency.

Natural Gas Pipeline Under Way in Oklahoma

CITIES Service Transportation and Chemical Co., of Ponca City, Okla., is now constructing a 26-inch natural gas pipeline from the Hugoton field north of Guymon to Blackwell, a distance of approximately 231 miles, in which three rivers will be spanned.

R. G. Strong, company official at Ponca City announces that the 26-inch line and the river crossings,

each of which will consist of two 20-inch pipes, are being constructed by Bechtel - Dempsey-Price, of Tulsa, Okla., and that the gathering system will be constructed by Anderson Brothers, of Hamilton, Ohio.

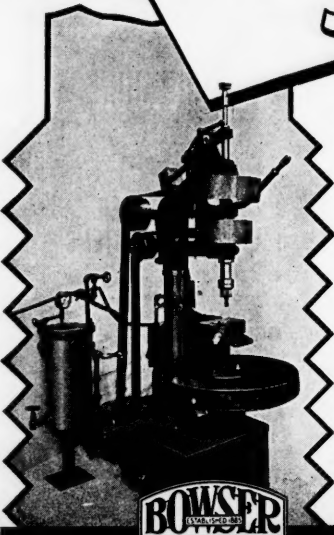
A compressor station and dehydration plant is part of the project. Work on this will be done by Hudson Engineering Corp., of Houston, Texas. The contract for the telephone line has been awarded to R. E. Mattison & Co., of Britton, Okla. All design, engineering and inspection is being handled by the Cities Service organization.

The 26-inch line, says Mr. Strong, is being solid welded, with factory bends used in all angular deflections required by the topography of the country through which the line runs. Hot coal tar enamel will be applied to protect the line against corrosion. The gathering system will consist of 60 miles of 4-, 8-, 10-, 16- and 20-inch pipe. Capacity of the Guymon compressor station will be 8,000 hp.

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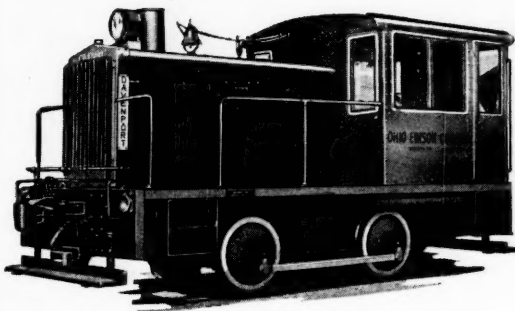
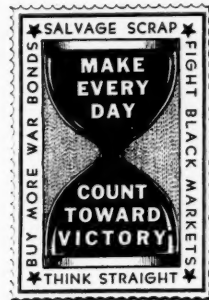
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The Railroads' Future

(Continued from page 29)

vices overnight.

It follows, then, that one of the things we will have to depend on is imagination to pull us through the difficult days that will surely come between the end of the war and the full restoration of our peacetime economy.

As much as we would like to do it, we won't be able to scrap our conventional passenger equipment immediately and gridiron the nation with shiny new streamliners. We will still have to run most of the locomotives we've got for awhile, regardless of how nice it would be to buy all new ones. For a time at least, we will have neither the money nor the opportunity to revolutionize the design of our freight cars, the character of our signal systems, or the layout of our yards and terminals. Radical and wholesale improvements will have to be introduced gradually.

Yet competition isn't going to

wait. Which brings us squarely around to our first hope—that imagination will carry us through this critical early post-war period.

Meanwhile, all that can be said with assurance now is, that this imagination must be applied quickly and intelligently to every phase of the railroad business—to our passenger services, on which the railroads generally have lost money for many years; to our freight services, particularly l.c.l. and merchandise traffic; to our operations, our selling methods, accounting procedures and to all the other activities that we call railroading. In each of these, imagination will determine how well we weather the storm that is even now visible on the horizon.

So far, we have considered the employment of imagination in this railroad business as a temporary expedient. As a matter of fact, the employment of imagination in the railroad business, from here on, is of equal or even greater importance. For the railroads of this

country are today faced with the choice of either giving free rein to imagination or accepting the humiliating role of a carrier of that traffic which the other forms of transport don't want.

If we hope to compete successfully in the years to come for high-class freight; for passenger travel; for the mail and express tonnage of the nation, we've got to apply imagination to every operation, every facility, every method of doing business. We've got to free our minds of all the venerable do's and don'ts that circumscribe our thinking. We've got to tear ourselves out of the rut of rigid behavior patterns. We've got to mark many a sacred cow for slaughter. We've got to apply modern yardsticks to everything we do and say and think in this business of railroading. We've got to rid our house, from top to bottom, of obsolete concepts, beliefs, convictions. And we've got to furnish it anew—with imagination. We either do these

(Continued on page 62)



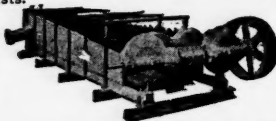
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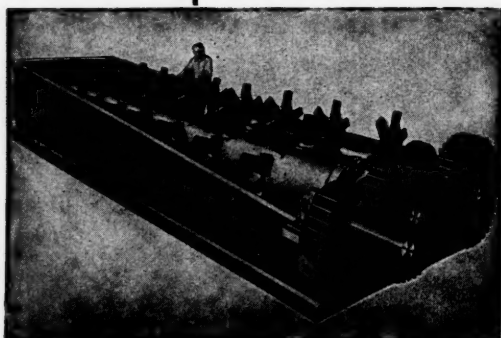
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The Railroads' Future

(Continued from page 60)

things, or we must be content for the rest of time with the dreary job of handling mostly bulk commodities.

The second priceless asset to which I referred is courage—a concomitant of the particular kind of imagination we have been talking about. Where imagination creates ideas, courage puts them to work.

Perhaps I should digress here to explain that I am not talking now about ordinary courage. The railroads have plenty of that—as their rich history demonstrates, and as the daily record of railroad operation proves so conclusively. What I am talking about now is a different kind of courage; the kind that dares to experiment; the kind that faces unpleasant facts squarely; the one kind of courage that is necessary to set aside preconceived notions, time-honored traditions, established routines, even personal bias, whenever so doing will improve railroad services, the rail-

road plant or its methods of operation. This is the courage of the open mind.


I am sure that there is no need to labor the point that imagination is useless without the materializing support of this kind of courage. All the brilliant ideas in the world; all the fact-finding and constructive thinking of which mankind is capable, would be of no practical value unless someone in authority has the courage of the pioneer; the courage to try something new; the courage to encourage imagination by employing it courageously.

We had plenty of this kind of courage in the railway business when it was younger. Otherwise we would never have developed the great railroad systems that are today the envy of the civilized world. But as the industry attained maturity, we seemed to lose some of our pioneering spirit. Perhaps it was because we built so well, so solidly, so soundly that we put a premium on change. Perhaps we became too preoccupied with the

actual running of our railroads to have much time for experimentation. Whatever the cause, this fact stands out clearly now—we must either have the pioneer's courage to implement imagination, or, content ourselves with the crumbs that fall from the transport table.

I said earlier that I have no fear for the future of these railroads of ours. I explained then that I based my optimism largely on the two priceless assets which I have described. It must be apparent, then, that I could never voice such an abiding faith in our future unless I believed, sincerely and with all my heart, that we have on our railroads today both the imagination and the courage requisite to a future that will eclipse anything we have ever known before. Our problem is, therefore, not one of creating talent or capacity, but only one of unleashing inherent imagination and mustering latent courage; of reenergizing the vision, the ingenuity, the pioneering spirit that gave our nation the greatest sys-


(Continued on page 64)



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M & H FIRE HYDRANTS are revolving head, dry top, bronze mounted. They also are approved by "UA-FM". Entire main valve assembly is removable through barrel without digging. Special Traffic Model is fitted with breakable bolts and stem coupling, designed to break at ground line under impact. Repairs are made simply by renewing bolts and coupling, without shutting off the water.

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**WATER PRESSURE SYSTEMS
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The Railroads' Future

(Continued from page 62)

tem of mass transportation the world has ever known.

In the words of Henry W. Longfellow I say:

"Look not mournfully into the Past. It comes not back again. Wisely improve the Present. It is thine. And go forth to meet the shadowy future, without fear, and with a manly heart."

South a Great Opportunity

(Continued from page 33)

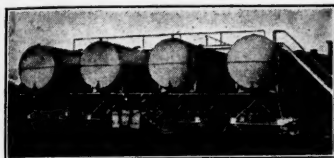
of some of the industries in the higher skilled labor class, plants that will pay top wages to keep the skilled labor in the South that has been developed in Southern plants. For instance, if some phase of the automotive industry and peace-time aircraft industry should locate down here, it would be of great benefit to the South. Many more of the South's commodities now shipped out in an almost raw state could receive further processing here. Certainly that applies, too, to agricultural products.

Success in accomplishing these things can permanently remove any unbalance which may remain of an old economy built on raw materials—especially cotton and tobacco. It is history that in every country of the world the raw material producer has been exploited by the industrial community, with the result that every Nation and every section has tried to establish a balanced economy between its agriculture and its industry. Certainly great progress already has been made in the South in the last quarter century, but wise utilization of the war built plants offers the greatest and brightest hope the South ever had for making this balance more equal.

SYNTHETIC RUBBER—
44-page booklet "Towers of Triumph" answers common questions on synthetic rubber and a tribute to American engineering genius. The Dayton Rubber Manufacturing Co., Dayton, Ohio.

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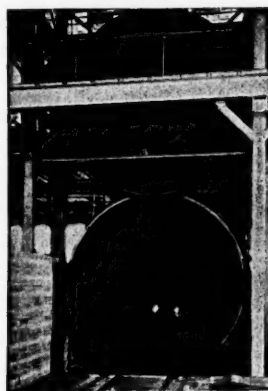
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ESTABLISHED 1854
NEWNAN GEORGIA

Texas Gasoline Plant to Have 60,000 Gallon Daily Capacity

A NATURAL gasoline plant to have a daily capacity of 60,000 barrels daily is now under construction at Hawkins, Texas, where the Hawkins Woodbine oil and pool of southeastern Wood County was discovered in December, 1940. Construction is under

the supervision of the Gasoline Plant Construction Corp., of Houston, Texas.

The plant will be owned by the Humble Oil & Refining Corp., of Houston, and the Natural Gasoline Corp., of Tulsa, Okla., operation to be carried out by the latter. Absorption will be effected at 200 pounds pressure and the volume of gas handled daily will approxi-

mate 15,000,000 cubic feet.

In addition to the natural gasoline output, the plant will be capable of manufacturing propane, iso-butane, normal butane, isopentane and motor fuel.

Anderson Brothers Construction Co., of Tulsa, hold the contract for laying approximately 100 miles of gathering lines of from 24 to 2 inches in diameter.

Sanymetal ASBESTOS BOARD
TOILET COMPARTMENTS
Complete with Door Hardware and Partition Fittings
NOW AVAILABLE — READY TO INSTALL



More men and women workers require more toilet facilities. Sanymetal Asbestos Board Toilet Compartments provide the utmost convenience, privacy and sanitation, and these additional features:

SAVE TIME AND MONEY: no need to design or attempt to build home-made toilet facilities. Sanymetal Compartments are economically designed and built by specialists, made with the best materials available and furnished complete with door hardware and partition fittings.

CONVENIENCE AND SANITATION are embodied in Sanymetal Asbestos Board Toilet Compartments in a degree unapproached by those

lacking Sanymetal's 28 years of specialized experience in this line.

DURABLE AND RIGID installation provided by laminated cement-asbestos boards which affords a strong structure resistant to fire, wear and moisture; free from dirt-collecting pockets and ledges—easy to keep clean.

ONE ORDER, ONE PRIORITY covers everything you need for complete installation, even complete door hardware and partition fittings.

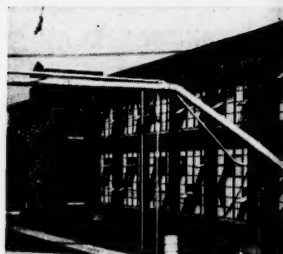
Write for Bulletin No. 940 and No. 935 for complete data on Sanymetal Asbestos Board Toilet Compartments. For quick action, see "Partitions" in your phone book for Sanymetal Representative.

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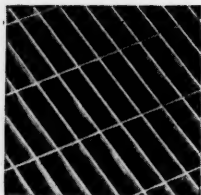
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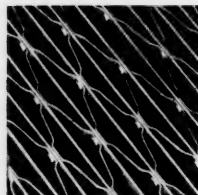
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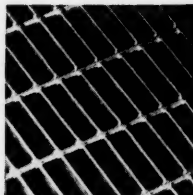
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